Alma Mater Studiorum – Università di Bologna
in collaborazione con LAST-JD Consortium
Università degli studi di Torino
Universitat Autonoma de Barcelona
Mykolas Romeris University
Tilburg University

DOTTORATO DI RICERCA IN

Erasmus Mundus Joint International Doctoral Degree in Law, Science and Technology
Ciclo 29 – A.Y. 2013/2014

Settore Concorsuale di afferenza: 12H3

Settore Scientifico disciplinare: IUS20

Titolo tesi

“Online gambling in the EU: from data protection to gambler protection"

Presentata da: Dusan Pavlovic

Coordinatore
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Esame finale anno 2018

Online gambling in the EU: from data protection to gambler protection

Proefschrift ter verkrijging van de graad van doctor aan Tilburg University op gezag van de rector magnificus, prof.dr. E.H.L. Aarts, en Università di Bologna op gezag van de rector magnificus, prof.dr. F. Ubertini, in het openbaar te verdedigen ten overstaan van een door het college voor promoties aangewezen commissie in de Ruth First zaal van Tilburg University op

dinsdag 26 juni 2018 om 16.00 uur

door

Dušan Pavlović

geboren te Niš, Servië

Alma Mater Studiorum – Università di Bologna
in partnership with LAST-JD Consortium
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Year 2018

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Chapter I: Introduction

1 Setting the stage

'EU gambling regulation has not succeeded' - this ascertainment is often repeated among stakeholders in the European gambling domain. However, this claim is not absolutely true. Rather, EU gambling regulation does not yet exist and thus, it is more appropriate to claim that regulative initiatives at the EU level have failed. The main reason why the regulation of online gambling at the level of the EU has been unsuccessful seems to be because Member States have been striving to regulate gambling activities on their own at the national level. By doing so, they avoid harmonizing their national legislations in the domain of gambling, including online gambling. Julia Hörnle has described the relation between EU initiatives for harmonizing gambling regulations and the regulative aspirations of Member States as that of a "tug of war without a winner".[1] Member States call upon different cultural, social and political features regarding gambling in order to justify the use of the principle of subsidiarity to regulate gambling at the national level.[2] As a consequence, online gambling as a service with various distinctive attributes is controlled, organized and regulated exclusively at the national level. This approach is officially justified by reference to the need to protect national policies (e.g. public health policies, youth policies etc.). Besides the principle of subsidiarity, the cornerstones for regulating gambling at the national level are provided by several rulings made by the European Court of Justice (hereinafter CJEU). The CJEU's case law could be seen as providing a *carte blanche*, with only some limitations placed on Member States that regard regulating gambling in accordance with national policies.[3]

Gambling legislation enacted by Member States varies from 'totally prohibitive' to 'liberal prohibitive'[4]. In recent years, it is noticeable that there exist certain tendencies toward the liberalization of the gambling sector. However, despite efforts having been made towards liberalization, when it comes to the regulation of gambling in the EU, the current state of the field can be described as legislatively fragmented (28 Member States with 28 different gambling legislations), without taking into account the principle of freedom to provide services in the EU. So far, practice has demonstrated that the fragmentation of gambling legislation in the EU is not a very successful strategy for fighting illegal online gambling. Despite the efforts made by national governments to eliminate illegal entities who operate in

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[1] Julia Hörnle, 'Online Gambling in the European Union : A Tug of War without a Winner?' (2011) 30 Yearbook of European Law 255.

[2] The European Parliament, 'The principle of subsidiarity' (2017) <http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.2.2.pdf> accessed 18 December 2017.

[3] Alan Littler, *Member States versus the European Union: The Regulation of Gambling* (Martinus Nijhoff Publishers 2011), 2, 251, 302.

[4] Casabona identifies the following regulatory approaches regarding the licensing of online gambling operators:

- Totally prohibitive jurisdictions
- Protectionist prohibitive systems
- Completely liberal systems
- Restrictive liberal jurisdictions
- Liberal prohibitive systems

Salvatore Casabona, 'The EU's online gambling regulatory approach and the crisis of legal modernity' (2014) EU Centre in Singapore Working Paper No.19, 3-4 <http://aei.pitt.edu/47671/1/WP19-Online-Gambling-Regulations.pdf> accessed 18 December 2017.

the realm of online gambling, and minimize their activities, so-called 'gray'[5] and illegal online markets have developed in the EU due to the co-existence of different Member State regulatory models and the problems related to their enforcement.[6] As an illustration, in 2011 more than 85% of gambling sites in Europe were operating without a license.[7] Member States did not achieve the desired results in relation to the requirement of online gambling service providers having to obtain national licenses. The operation of illegal entities usually has undesirable impacts on certain societies. One element of this is that the protective function of law is insufficiently effected: it is highly disputable whether (and if so, how) national gambling legislations can effectively protect online gamblers in Europe when the prevalence of illegal or 'gray' online gambling service providers in the European market is so evident.

The current state of affairs creates numerous risks that practically jeopardize online gamblers in Europe. It is very common for players to access an online gambling service regardless of where the service provider is registered. But by doing so, gamblers expose themselves to different risks. Gambling services may be offered illegally as a result of a criminal organizations' efforts to penetrate the gambling market. Criminals may also try to make improper use of legal forms of gambling (e.g. certain criminals might engage in match-fixing and gamble on sporting events whose outcomes they already know in advance). Emerging technologies could even serve as instruments that may further stimulate the impetus to gamble and provoke gambling addiction. Gambling addiction can lead an individual to engage in various different forms of behavior and acts, including the committing of crimes.[8] Notwithstanding the various risks deriving from gambling activities, this research pays particular attention to the prevention of problem gambling and the implementation of responsible gambling approaches that will be analyzed in detail in the coming chapters.

It has to be stressed that online gambling is a lucrative service that crosses borders and that is considered to be one of the most progressive online services in the EU. Statistical data even shows that online gambling is the service with the highest annual growth in EU. In recent years, online gambling has been constantly developing and attracting new players.[9] Notwithstanding the beneficial aspects related to the progression of this business, one noticeable downside is gambling addiction, also known as problem gambling. In the EU, problem gambling rates are at about 0.5-2%, with this number rising to around 3% in some countries.[10] Thus, the increasing number of gamblers in the overall population leads to an incremental number of people who suffer from problem gambling.

1.1 Protection of online gamblers

The generally declared policy for consumer protection in the EU advocates for a high level of protection. Consumer protection is strongly embedded in the values and principles that underlie the European social model. However, the sources of EU Consumer Protection Law explicitly exclude gambling activities

[5] For more information about 'gray' online market check the reference No.3 in: The European Commission, GREEN PAPER on on-Line Gambling in the Internal Market, COM/2011/0128 final, 24 March 2011 (The Green Paper).
[6] The Green Paper.
[7] Despite the fact that this information is quite dated, it is taken from one of the latest studies about gambling-related issues carried out and published by the European Commission. For more about see The Green Paper.
[8] Toine Spapens, 'Crime Problems related to Gambling: An Overview' in Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhhoff Publishers 2008).
[9] European Commission, 'GROWTH: Internal Market, Industry, Entrepreneurship and SMEs: Gambling' <http://ec.europa.eu/growth/sectors/gambling/> accessed 18 December 2017.
[10] Mark Griffiths, 'Problem Gambling in Europe: An Overview' (Nottingham Trent University, April 2009), 62.

from their scope of regulation.[11] Despite the lack of EU consumer protection applicable to gambling matters, and a lack of harmonization of national gambling legislations,[12] commonalties between the purposes and objectives of said national legislation is noticeable. All the regulators strongly consider the need to control excesses; the need to enable a non-problematic supply of gambling services; and the need to preserve the role of gambling as a basis for the financial support of social objectives like sports, charities, arts and other social and public functions.[13] Differences in gambling regulations inevitably exist, but national policies and related laws hold common objectives.[14] The protection of gamblers is a highly important goal for all national gambling legislation in Europe. In order to protect gamblers, Member States have introduced different measures. In a very general manner, measures can be classified into two groups – measures that regulate the supply of gambling services and measures that regulate the demand for gambling. As concerns regulating the supply of gambling services, Member States usually introduce quantitative limitations on the provision of gambling services, in order to minimize the negative social influences associated with gambling. Using this method, Member State regulators decide upon the appropriate number of gambling service providers and limitations that ought to be applicable to the gambling industry. On the other hand, in order to regulate the demand for gambling services, different legal measures regarding the accessibility of gambling services have been implemented. The exclusion of some categories of citizens, the assertion that gambling by vulnerable categories of citizens is illicit, and strict controls over the advertising of gambling services, are just a few examples of how Member States regulate the demand for gambling services.[15]

In order to increase the level of protection for online gamblers, the European Commission and European Parliament have, since 2009, undertaken several initiatives to regulate online gambling in the EU, adopting and announcing several documents in this respect.[16] Despite extensive public discussion, the

[11] In 2011, a new Consumer Rights Directive was adopted in order to empower consumers in the EU and additionally harmonize consumer rights at the EU level. This directive specifically regulates consumer protection in the digital environment. However, this Directive in article 3(3)(c) excludes gambling activities from its scope of regulation.

[12] For more about see Chapter II, section 4.

[13] Peter Kerstens, 'Gambling Policy – The EU Dilemma' in Alan Littler and Cyrille Fijnaut (eds), *The Regulation of Gambling – European and National Perspectives* (Martinus Nijhoff Publishers 2007), 10.

[14] Kerstens extracts common objectives regarding gambling from the national policies of EU Member States and places them in the following categories:

- Protection of minors
- Controlling addiction and compulsive behavior
- Financing public purposes
- Financing charities, sport, arts, culture
- Proper supervision of fairness
- Transparency in the rule of the games
- Fighting illegal activity such as money laundering
- Control of advertising

For more about see Kerstens (n 13) 10.

[15] Littler (n 3) 57-63.

[16] The Green Paper; European Commission, Staff Working Paper accompanying document to the Green Paper on on-line gambling in the Internal Market, COM(2011) 128 final**;** Communication from The Commission to The European Parliament, The Council, The Economic and Social Committee and The Committee of The Regions Towards a Comprehensive European Framework for Online Gambling, COM/2012/0596 final; The European Commission, Staff Working Document, Online gambling in the Internal Market Accompanying the document Communication from the Commission to the European Parliament, The Council, The Economic and Social

efforts made toward the harmonization of gambling regulations have only resulted in legally non-binding documents. These documents only encourage Member States to adopt certain principles of consumer protection in the domain of online gambling. Nevertheless, certain hot topics regarding online gambling have been identified. Documents which have been announced and adopted[17] highlight at least three common issues regarding online gambling in the EU:

- online gambling is a very progressive business
- online gambling is shaped by various regulatory frameworks
- online gamblers deserve better protection

EU Commission initiatives did not meet their expectations regarding the harmonization of national gambling legislations. The latest outcome of the EU Commission's efforts is the announcement of a legally non-binding recommendation of principles for the protection of players and consumers of online gambling services, and for the prevention of minors gambling online (hereinafter the EC Recommendation).[18] Despite the fact that this document is not mandatory and could serve as soft law, the EC Recommendation underlines the main principles from the national legislation of Member States related to online gambling. The aim of the EC Recommendation is "to safeguard the health of consumers and players and thus also minimize eventual economic harm that may result from compulsive or excessive gambling."[19] Proposed measures are in place to "counter the risk of financial or social harm as well as to set out actions needed to prevent minors from gambling online".[20]

1.2 The processing of gamblers' personal data and the protection of online gamblers

Like any other online service, the processing of consumers' personal data by online gambling service providers is necessary for the functioning of the service. Any person who intends to gamble online has to register and open a personal account. Online gambling service providers request several different personal data for registration purposes. The EC Recommendation laid down that after such registration, all player activity has to be monitored by a gambling operator. Operators have to be able to inform players and alert them about their winnings and losses and about the duration of their play. This sort of information has to be sent on a regular basis.[21] Whenever gambling behavior indicates a risk of the development of a gambling disorder, players should be supported and offered professional assistance.[22] In addition, players can, by themselves, initiate a limitation of their own gambling activities using self-exclusion mechanisms.[23]

It is not difficult to draw a conclusion that in order to prevent minors and problematic gamblers from gambling, register new players, monitor player activity, respect the decisions by players regarding a

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Committee and The Committee of The Regions Towards a Comprehensive Framework for Online Gambling, SWD/2012/0345 final; The European Parliament Resolution of 10 September 2013 on Online Gambling in The Internal Market (2012/2322(INI)), 10 September 2013.

[17] Ibid.

[18] The European Commission Recommendation 2014/478/EU of 14 July 2014 on Principles for the Protection of Consumers and Players of Online Gambling Services and for the Prevention of Minors from Gambling Online [2014] OJ L214/38 (EC Recommendation).

[19] EC Recommendation, recital 9.

[20] Ibid, recital 2.

[21] Ibid, art 26.

[22] Ibid, art 25.

[23] Ibid, sec VII.

break or exclusion from gambling for certain periods of time, and to advertise their own products and services, online gambling service providers collect and process a large volume of gambler data. Alongside mandatory legal requirements (e.g. the collection of data necessary for age verification as an obligatory part of a player's registration), there are additional reasons for the collection of a gambler's personal data – such as business needs (e.g. the collection of data for profiling players that would further be used for commercial communication purposes) and the implementation of responsible gambling strategies (e.g. the collection of data about self-excluded players).

A substantial part of the proposed measures made by the EC Recommendation and requirements that are supposed to enhance online gambler protection, interrelate with the processing of the personal data of gamblers. However, the European legal tradition has been striving towards providing strong protection for personal privacy, including the introduction of the necessity for strong justifications for personal data processing. The legal foundations for the protection of personal privacy were established in the second part of the XX century, actually in period after World War II.[24] In 1981, the Council of Europe adopted the Convention for the Protection of Individuals with regard to the Automatic Processing of Personal Data[25]. This is the first international legally binding instrument related to data protection matters. Under EU Law, data protection was regulated for the first time by the Data Protection Directive[26]. Moreover, under EU Law, data protection has been laid down as a fundamental right. Article 8 of the Charter of Fundamental Rights provides the essence of European Data Protection Law. Firstly, everyone has the right to the protection of personal data concerning him or her. In addition, any personal data must be processed fairly for specified purposes and on the basis of the consent of the person concerned, or of some other legitimate basis laid down by the law. Finally, everyone has the right to access data which has been collected concerning him or her, and the right to have it rectified.[27]

Contemporary European Data Protection Law has constituted several principles regarding personal data processing. The collection of personal data as a way of data processing should be limited to what is necessary to accomplish specified purposes. In addition, only personal data that is really necessary should be collected, and kept only for as long as it is needed. This principle is known as 'data minimization'. It is enshrined in the Data Protection Directive[28] and General Data Protection Regulation (hereinafter GDPR)[29], and reflects contemporary legislative tendencies in European Data Protection

[24] Article 12 of the United Nations' Universal Declaration of Human Rights laid down, for the first time, the right to protect an individual's private life from interference and attack. In 1950, the Council of Europe adopted the European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR). Article 8 of the ECHR emphasizes everyone's right to respect for their private and family life, home and correspondence.

[25] The Council of Europe Convention No. 108 for the Protection of Individuals with regard to Automatic Processing of Personal Data (adopted 28 January 1981, entered into force 1 October 1985).

[26] The European Parliament and the Council Directive 95/46/EC of 24 October 1995 on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data [1995] OJ L281/31 (Directive 95/46).

[27] The European Parliament, the Council and the Commission Charter of Fundamental Rights of The European Union [2012] OJ C326/391, art 8.

[28] Directive 95/46, art 6(1)(c).

[29] The European Parliament and of The Council Regulation 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L119/1 (GDPR), art 5(1)(c).

Law.[30] However, the implementation of the data minimization principle in the online environment provokes numerous problems.

In terms of business, having more personal data helps with the profiling of consumers. Profiling is used in a variety of cases and for that reason it is difficult to provide a unique explanation of this concept.[31] In the online gambling context, profiling can be used by service providers to identify gamblers whose interests tally with the service providers' business goals. Thereby, service providers can identify gamblers with preferences towards specific ways of gambling and offer games which gamblers are likely to be interested in. Therefore, online gambling service providers may create personalized commercial communications that target specific customers in order to meet their needs. Alongside marketing activities, a large volume of gambler data could be used for the prevention and recognition of fraudulent intentions and illegal activities (e.g. prevention of children registering as adults and subsequently gambling online).

Gambler data could also be used for responsible gambling purposes. Responsible gamblers are people who are able to control how much time and money they spend on gambling. They treat gambling as entertainment which can form part of a balanced lifestyle. This means that for responsible gamblers, gambling is like any other form of entertainment. Responsible gambling means not spending more money or time than a gambler can reasonably afford, keeping in mind their other responsibilities in life.[32] The opposite type of gambling is usually considered to be problematic gambling. By monitoring gambler behavior and analyzing gambler data, service providers can detect patterns of problematic gambling. Subsequently, a service provider may warn gamblers whose gambling could be considered problematic or take other appropriate actions. In addition, proper identification of gamblers is necessary in order to determine which gamblers have limited the amount of time and money they can spend on gambling through the use of self-exclusion mechanisms.

Not only can personal data from online gamblers be used for the benefit of their protection, it can also be used for commercial and business purposes. The improvement of business could be sought via the attraction of new players, or achieved by a higher consumption of gambling by already experienced players. If the higher consumption exceeds the context of responsible gambling, it would probably result in the erosion of gamblers' health and/or their financial state. Thus, in the domain of online gambling in Europe, there is an interrelation between tendencies toward the strong protection of online gamblers and those towards the strong protection of their data. However, there is also an intrinsic tension between online gambler protection and the protection of their data. Minimizing the processing of online gambler data may limit the possibilities of identifying gamblers and recognizing gamblers at risk. On the other hand, large-scale processing of online gambler data might place the personal privacy of gamblers at risk, and aid the profiling of their gambling preferences for commercial communication purposes.

[30] In April 2016 the GDPR was approved by European Parliament. GDPR will be fully enforceable on 25 May 2018 when it will replace Data Protection Directive and become directly applicable in all EU Member States.

[31] Mireille Hildebrandt defined profiling as: "The process of 'discovering' correlations between data in databases that can be used to identify and represent a human or nonhuman subject (individual or group) and/or the application of profiles (sets of correlated data) to individuate and represent a subject or to identify a subject as a member of a group or category" For more about see: Mireille Hildebrandt, 'Defining Profiling: A New Type of Knowledge?' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizens: Cross-Disciplinary Perspective* (Springer 2008), 19.

[32] More about responsible gambling is presented in Chapter III.

Therefore, the protection of online gamblers on the one side, and protection of their data on the other, while inter-relatable, also have potentially clashing interests.

2 Aim of the study

Addressing online gambling in the EU from the perspective of the protection of online gamblers, this research aims to present possibilities for improvements to such protection. Starting with the hypothesis that the EU's system of consumer protection is not (and will not be) applied to online gambling in the EU,[33] the research focuses on the responsible gambling approach. Namely, the research investigates the processing of online gamblers' personal data as a method that contributes to the protection of online gamblers, taking into consideration the general goal (and principles) of responsible gambling. Thereby, the research observes how the processing of online gamblers' personal data contributes to the protection of online gamblers, but also points out the risks associated with such processing, and how they conflict with the goal of protecting gamblers.

Taking into consideration the broad scope of elements involved when concerned with responsible gambling and the protection of online gamblers, a selection has been made regarding the particular elements related to gambler protection that will be taken into consideration for the research purposes of this thesis. The research views the prevention of problem gambling as a crucial goal for the protection of gamblers. The prevention of problem gambling includes different policies, regulations and measures. The research is narrowed down and focused on the processing of gamblers' personal data used for the identification of players and commercial communication purposes. The first has been chosen because the identification of players is particularly important for the recognition of gamblers at risk. The second has been selected since research in the domain of gambling studies has shown that commercial communication influences the consumption of gambling and the attraction of gamblers.[34]

The main aim of the research is to create and analyze several different strategies for processing the personal data of online gamblers, for identification and commercial communication purposes, in order to demonstrate the implications they have for the protection of online gamblers. In order to achieve the main aim, the research answers the following research question: *How does the processing of online gamblers' personal data, which is used for identification and commercial communication purposes, affect the protection of online gamblers in the EU?* To answer the main research question, the following sub-questions need to be answered:

1. What are the specific regulatory challenges regarding gambling and online gambling?
2. What are the particular challenges facing a responsible gambling approach?
3. Which types of data processing are relevant for online gambling providers for the identification of online gamblers and commercial communication?
4. What possible strategies for processing personal data are available for identification and commercial communication that could maximize the protection of online gamblers?
5. To what extent are these strategies compatible with EU data protection law?

[33] The hypothesis is based on the findings from the legal analysis of online gambling legislation in EU presented in the Chapter II, section 4.

[34] Nerilee Hing and others, 'Do advertising and promotions for online gambling increase gambling consumption? An exploratory study' (2014) 14 International Gambling Studies 394.

By answering the main research question and accompanied sub-questions, the research aims to contribute to the field of law and technology. The presentation of how the processing of online gamblers' personal data interrelates with the protection of gamblers constitutes the main research result. The thesis demonstrates whether, in which cases, and how, the processing of online gamblers' personal data in the observed contexts can improve the protection of online gamblers in the EU.

3 Outline of the study

The study contains two parts. The first part is composed of the chapters I - V. After the first chapter provides the blue-print of the study, the second chapter outlines the context of online gambling in Europe. In doing so, the study presents the historical development of traditional gambling and online gambling, as well as legal definitions, an unpacking of the relevant ethical discourse and the composition of the contemporary online gambling business in Europe. This description points out the main regulatory problems and challenges of the business practice of online gambling and the difficulties involved in regulating online gambling in the EU.

The third chapter scrutinizes risks that jeopardize the protection of online gamblers and presents the concept of responsible gambling. The chapter begins by describing the risks and harms related to gambling, before moving on to conceptualize the notion of problem gambling. The part on responsible gambling delineates the most important principles of this concept and provides the author's view on responsible gambling.

The fourth chapter sheds light on the relationship between the processing of online gamblers' data and the provocation of problem gambling. The focus of the chapter is on gambling-related commercial communication and its role in provoking problem gambling. In particular, the chapter explains the profiling process for commercial communication purposes and presents the business practice related to the processing of gamblers' personal data in order to reveal where advertisers get their data from.

The fifth chapter rounds up the first part of the study. This chapter presents how the processing of online gamblers' personal data can be used for protective purposes. The chapter focuses on the process of identification. The theoretical aspects of identification are presented first, before moving on to reveal its role in gambler protection. The chapter also contains an analysis of the self-exclusion mechanism that is omnipresent; that is, the responsible gambling measure for which the functioning of gamblers' identification is a crucial factor.

In the second part of the study, the relations, tensions and conflicts between the protection of online gamblers and the protection of personal data, as processed by online gambling service providers, are analyzed. The second part gathers the sixth, seventh and eighth chapter. The sixth chapter describes the work of Jaap-Henk Hoepman on privacy design strategies, which was used as an inspirational source for the designing of strategies for processing online gamblers' personal data. Therefore, the main features of his privacy design strategies and accompanying tactics are described in this chapter.

The seventh chapter presents strategies for the processing of online gamblers' personal data. The strategies are based on Hoepman's proposals for data minimization and data separation strategies and their antipodes – data maximization and data linking strategies. The chapter firstly analyzes the business practice regarding the types of online gambler data that is processed for gambling-related activities, including data processed for the protection of online gamblers. By taking into account several different levels regarding the scope of gamblers` personal data that is (and that could be) processed by service

providers, several strategies for the processing of gamblers' personal data in the domain of online gambling are proposed. Scenarios that may occur as a result of the implementation of these strategies are then discussed.

The eighth chapter provides a legal analysis in order to answer whether and to what extent the implementation of privacy invasive strategies (data maximization and data linking strategies) could be lawful.

The conclusion of the study is provided in the ninth chapter. The conclusion elaborates upon the most important arguments and findings presented in the study and then shifts to the most important lessons learned from the findings. This last chapter contains the author's answers to the main research question through a set of reviews and critiques.

4 Methodology

The presentation of the current state of the field of online gambling in the EU, determination of online gambler protection in the EU, presentation of the business practice related to the processing of gamblers' personal data, and the proposition of strategies for processing gamblers' personal data, require several different methodologies.

The study first deploys desk research and doctrinal legal research, basing its description and analysis on sources from different academic fields (psychology, information technology, and law), reflecting a multidisciplinary approach. The author of the study, being a legal scholar, is not an expert in all of these disciplines. However, the author has familiarized himself with the literature from these different fields and consulted with experts in the relevant fields to the extent that the findings are considered appropriate for achieving the aim of the study.

The first part of the research has the features of descriptive legal research, due to the fact that it observes relevant legislation including national, international and supranational legislation, as well as case law. The analysis of legal sources includes historical interpretation as well as the consideration of contemporary perspectives. The first part of the study also presents certain relevant findings from research conducted on gambling studies in general and on issues of personal identity and profiling in particular. The focus here is on applied research, due to the practical implications the study's findings and analysis have.

The second part of the study is analytical in character. In this part, the available information has been analyzed in order to critically evaluate the findings. The discussion of the proposed strategies for processing gamblers' personal data, as well as the evaluation of online gambler protection is based on factual and legal argumentation. The argumentation draws not only from legal literature but also from other relevant fields, involving factors like public policies, as well as technological, psychological and medical standards.

As the research has a qualitative nature, all presented results and properties are unquantified, exposed to argumentation and suitable for further research.

Chapter II: What is online gambling?

1 Introduction

Misunderstanding is a reoccurring phenomenon in human communication. People are used to hearing or repeating sentences such as, 'That is not what I said' or 'You didn't understand me well'. Speakers and listeners may perceive different situations from the same linguistic expression. However, if they share similar experiences and knowledge, or live in a similar environment, it is probable that they will give a similar (if not the same) meaning to a particular expression. In other words, under certain circumstances, listeners are capable of correctly understanding the context presented by speakers. In such situations, it might be said that they share a common context.[35]

Any scientific research requires a certain level of expertise, knowledge and experience regarding the relevant topic of interest. Like every day communication among ordinary people, the domain of science is not immune to misunderstanding. Different scientific fields and works define terms like agent, transposition, processing or claim in different ways. The legal notion of gambling, for example, does not coincide with technological, psychological or anthropological perspectives of gambling. Therefore, without a clear perception regarding the meaning of a certain term in related or non-related scientific fields (e.g. philosophy, law and informatics), researchers that derive information from different scientific communities may face difficulties when seeking to communicate in a common context.[36]

Although carrying dominant characteristics of legal research, the present research is multidisciplinary. The initial step in this research is conducted by shaping the central concept of the research - online gambling in the EU. To this end, this chapter frames the concept of online gambling in the EU through the presentation the relevant historical, legal and ethical contexts involved with said concept.

The historical context refers to the historical development of gambling in Europe and the development of online gambling. This aspect highlights the popularity of gambling, the difficulties involved in its regulation and the social problems related to gambling, as has been noted since the beginnings of gambling in Europe. This section indicates some of the main regulatory problems that are still an issue. The legal context of online gambling in the EU is outlined through the presentation of contemporary EU laws on gambling and online gambling in the EU. The most relevant case law of the CJEU, and the structure and definitions of online gambling from the sources of EU Law, are taken into consideration for the purpose of conceiving the concept of online gambling in the EU from a legal point of view. Ethical discourse on gambling regulation sheds a light on the reasons for regulating gambling in specific manners. In addition, the chapter contains a critical reflection on the contemporary regulation of gambling and online gambling in the European Union.

The chapter concludes by summarizing the context of online gambling in the EU.

[35] Barbara Bintliff, 'Context and Legal Research' (2006) 99 Law Library Journal 249.
[36] Ibid

2 The History of Gambling in Europe

The phrase *Historia magistra vitae est* derives from a literary work, *De Oratore*, created by the Roman poet, philosopher, lawyer and politician Marcus Tullius Ciciero in the 1st century BC. This Latin sentence shapes the notion of history as a tutor of life, emphasizing the importance of studying history for the perception of contemporary reality. History preserves stories about events and people from the past. At the same time, it helps us to understand the structures and compositions of societies as well as the changes that happened within them. In doing so, history is an unavoidable base in learning and decision-making processes.

Nobody is sure as to what the complete historical genesis of gambling looks like. Both the indeterminable history of gambling and the complex and dynamic structure of gambling activities are contributing factors to this lack of knowledge. David G. Schwartz from the University of Nevada, who is a well-known expert in the domain of gambling studies, has conducted research as to the development of gambling from the earliest times to the present. His book *Roll the bones: The History of Gambling*[37] is a detailed and unique presentation of the historical development of gambling through centuries. Based on this work, a short review of the historical development of gambling in Europe is presented.

2.1 Review of the historical development of gambling in Europe

The earliest history of gambling is vague, but points to the Mediterranean area, as well as archaic societies in Mesopotamia and ancient China as the birth places of gambling. In the period between 3000 BC and 1700 BC, gambling was closely connected with religious rites, divination and the explanation of a particularly positive or negative social event. Animal bones used for fortune telling can be considered as the ancestors of modern dice.[38] Divinity and idols had important roles in ancient societies and idols were recognized not only in gods, but also in athletes and participants of different competitions.[39] Greek and Roman traditions had betting at sport events, lauded by Roman Poet Ovid.[40] Also from the Roman period, *Corpus Iuris Civilis* testifies that gambling was of interest to legislators too.[41]

In Europe, card games and dice were probably brought from China around the Middle Ages. Until the 16th century, gambling was seen as a way for social interaction and fun. During the 16th century, mercantile gambling was invented in the Italian city of Venice. The application of theories of probabilities created a gambling revolution. Mercantile gambling is very similar to modern banking. Clients (gamblers) take gambling activities against an impersonal agent (house) for the price (and under conditions) announced by the house. This way of gambling has had an important role in financial circulation.[42] The appearance of the first banknote in Europe, in the 17th century[43], influenced the

[37] David G. Schwartz, *Roll the Bones: The History of Gambling: Casino edition* (eBook, Gotham Books, 2013).
[38] Schwartz (n 37) ch 1; Richard Holmgren, '"Money on the Hoof". The Astragalus Bone – Religion, Gaming and Primitive Money' in Santillo Frizell B. (ed), *Pecus. Man and Animal in Antiguity. Proceedings of the Conference* (The Swedish Institute in Rome, 2002).
[39] 'The Etymology of Gambling Terms: From Casino to Roulette' <http://www.rhapsodoioralgreekandlatin.org/the-etymology-of-gambling-terms> accessed 27 October 2017.
[40] Simon Planzer, *Empirical Views on European Gambling Law and Addiction* (Springer International Publishing, 2014) 2-3.
[41] Ibid 1.
[42] Schwartz (n 37) ch 1.
[43] Citoco, Cite de l'Economie et da la Monnaie, 'The First European Banknote' <https://www.citeco.fr/en/first-european-banknote> accessed 27 October 2017.

further development of mercantile gambling. The circulation of banknotes became a regular feature of life in Europe during the 18th century. New games, new rules, new opportunities and new social circumstances profiled a new style of gambling that was not known before.

In medieval Europe, gambling quickly became a source of fundraising for both the private and public sector. During the 17th century, Venice became the European Shangri-La for gambling, despite a formal prohibition of the practice. Moreover, this Italian city was the birthplace of modern casinos, known at that time as 'Ridottos', which brought considerable wealth to their owners. The city authorities tended to attract profits from the gambling business and, for that reason, legalized gambling and opened the first state-approved gambling house in Europe in 1638. However, gambling provoked social problems. 'The sin city on the Adriatic', attracted people from all around Europe. Prominent artists, philosophers, poets as well as ordinary people were highly motivated to come to this city. However, bankruptcy, crime and impoverishment spread in the city. In 1774, the Great Council of Venetia closed the state-owned Ridotto and changed the law. Gambling was prohibited. But despite the prohibition, hundreds of illegal gambling places were established.[44]

In France, during the 16th and 17th century, gambling was popular among all the social classes - from royal family members and soldiers who participated in the Hundred Years' War, to the general city population and people who lived in the countryside. It is an interesting fact that in the period from 1643 to 1777, thirty-two official acts in France announced gambling as a crime. However, this fact did not stop the expansion of card games, roulette and other games that were played in casinos, as well as social gambling. In the 1770s, French authorities decided to implement an 'if you cannot beat them, join them' strategy. Regulators imposed taxes on gambling in order to support public goods. A new regulation de jure legalized gambling in France. During the second half of the 18th century, Paris became the new gambling Eldorado of Europe.[45]

European revolutions, wars and crises have never decreased European tendencies to gamble. Political changes sped up migration to Europe and the new arrivals brought new cultures, habits and knowledge, as well as new forms of gambling. The French revolution did not influence rapid changes in gambling habits. Gambling was very popular during and after the revolution. As a consequence of the revolution, a lot of French people had to move to other countries. They brought their culture and behavior, including gambling habits to new countries. People who left France popularized gambling in other parts of Europe, particularly in Great Britain and Germany.[46] In the 18th century, the British contributed to the evolution of gambling by developing the practice of betting on horse races and cricket games.[47]

19th and 20th century Europe saw considerable political and social transitions following the aftermath of the industrial revolution, two world wars, further hostilities and very serious political diversification. Nevertheless, gambling expanded. Temporary prohibitions of gambling (e.g. in 1837, when gambling was prohibited in France) caused gambling businesses to migrate from country to country.[48] In general, the popularization of gambling and the development of gambling, as an industry, were not directly hit by disturbances which emerged during the late modern history of Europe. This unique phenomenon is

[44] Schwartz (n 37) ch 1.
[45] Ibid.
[46] Ibid
[47] Roger Munting, *An Economic and Social History of Gambling in Britain and the USA* (Manchester University Press, 1996) ch 1, 16-18.
[48] Schwartz (n 37) ch 3.

probably best explained by Schwartz's claim: "In the 20th century, no single political system had a monopoly on gambling and (…) no matter what the political system (monarchy, dictatorship or democracy) they were sure that a casino was the best bet for their prosperity".[49]

2.2 What can we learn from history?

In Europe, gambling has been popular everywhere, throughout all layers of the society and at any moment in history. Members of noble classes, like those described in Pushkin's *Pique Dame*[50], royals, owners of big capital, as well as ordinary middle class people, students, soldiers, peasants and homeless people, all used to gamble. Numerous forms of gambling were popular – from traditional games to very new forms of gambling that players could experience in convenient environments. In addition, gambling developments and changes have provoked constant difficulties for authorities to deal with. The historical context of how gambling has developed highlights the elusive character of gambling. Elusiveness, has always been, and remains, one of gambling's main features – "quality of being difficult to (…) define."[51]

The prohibition of gambling was always a short-term strategy with unsustainable outcomes. However, even the liberalization of gambling has not brought a predictable nor desirable solution. Both the acceptance and prohibition of gambling have continuously given way to each other. Inflated expectations from gambling were followed by liberal regulation. After the liberalization and promotion of gambling as socially acceptable, however, societies began to experience a rise in the negative aspects of gambling. Subsequently, expectations fell and regulators introduced prohibitive measures striving to limit gambling. However, innovations, as an integral part of the development of gambling in Europe, have offered novel solutions, perspectives and avenues for both the popularization of gambling as a form of entertainment and the development of gambling as an industry. Players and governments always see gambling as a new way of entertainment, but also as an opportunity to increase wealth. For that reason, the cycle of regulatory fluctuations is composed of an indefinite number of hyperbolas in which the prohibition and acceptance of gambling are nothing else but a temporary reaction to gambling development and its social consequences.

3 Moving into the present

The end of the 20th century and the beginning of the 21st the world bore witness to the development of the Internet. This development influenced gambling activities all around the world. The earliest history of online gambling is correlated to regulatory changes in the small Caribbean islands of Antigua and Barbuda. New laws allowed for the liberal provision of licenses to subjects interested in starting online casino services. Essentially, the legislation on these small Caribbean islands treated gambling services as any other business. During that same period new technology was being developed. Microgaming became the first known company that developed software for the provision of internet gambling services.[52] In addition, Cryptologic Limited, one of the oldest software producers, developed software

[49] Ibid.

[50] Aleksandar S. Puškin, *Pikova Dama – Belkinova i druge pripovetke* (Portal doo, 2016).

[51] 'elusiveness, n' *(OLD Online)* <https://www.oxfordlearnersdictionaries.com/definition/english/elusiveness?q=elusiveness> accessed 27 October 2017.

[52] History of Microgaming, <https://www.gamblingsites.com/history/microgaming/> accessed 29 October 2017.

for business-to-consumer financial transactions in the online gambling industry.[53] Therefore, the basic infrastructure for the provision of internet gambling services was completed.

At the beginning of its development, online gambling was particularly popular and successful in North America. Even though it is unclear when the first online casino was established, some authors claim that the first online casino was established in August 1995. That was Interactive Casino INC.[54] Only three years after the first online casinos were established, more than 90 online casinos, 39 lotteries, 8 online bingos and 53 sports betting agencies were formed. By the end of 1998, the online gambling industry had produced an annual revenue of $835 million.[55]

In the years to come, more than 250 web-pages were accepting bets from US players.[56] The USA was even the most important market until 2006. However, in 2006 the US Congress proposed and adopted the Security and Accountability for Every Port Act (SAFE Port Act)[57]. The general reason for the creation of this law was the fight against terrorism. The Unlawful Internet Gambling Enforcement Act (UIGEA)[58], as part of the Safe Port Act, includes a prohibition on funding unlawful internet gambling activities. Despite formal illegality, some service providers kept offering online poker services. On the 11th of April 2011, the USA authorities unsealed an indictment against the three largest online poker service providers[59] that provided services after the UIGEA took effect. The service providers were suspended and they were not able to offer the service anymore. Moreover, thousands of gamblers found themselves without their deposits overnight. This event is known as 'Black Friday'. The UIGEA has influenced the development of online gambling services, providing and significantly changing the USA market.[60] Thus, after 2006 the business focus moved from the USA to Europe.

Nowadays Europe is the largest online gambling market worldwide. It is estimated that almost 50% of the overall worldwide gambling market is attributed to the European market.[61] Despite the fact that gross gaming revenue[62] (hereinafter GGR) in the online gambling industry is much lower than in the offline gambling industry (in 2012 the online gambling industry represented 12% of the overall gambling industry in Europe[63], in 2015 the online gambling market was around 17% of the overall gambling

[53] Wikiinvest, 'Cryptologic' <http://www.wikinvest.com/stock/Cryptologic_(CRYP)> accessed 29 October 2017.
[54] Massimo Manzin and Roberto Biloslavo, 'Online Gambling: Today's Possibilities and Tomorrow's Opportunities' (2008) 6 Managing global transitions: International Research Journal 95.
[55] Frost & Sulivan, 'World Online Gambling Markets' (1999) <https://store.frost.com/world-online-gambling-markets.html> accessed 29 October 2017.
[56] Robert T. Wood and Robert J. Williams, 'Problem Gambling on the Internet: Implications for Internet Gambling Policy in North America' (2007) 9 New Media & Society 520.
[57] Security and Accountability For Every Port Act, 46 U.S.C. § 701 (2006).
[58] Unlawful Internet Gambling Enforcement Act, 31 U.S.C. §53 (2006).
[59] United States of America -v- Isai Scheinberg and others (2011).
[60] Adrianne Jeffries, 'Online poker industry still reeling two years after federal 'Black Friday' crackdown' (The Verge, April 2013) <https://www.theverge.com/2013/4/15/4226358/poker-black-friday-two-year-anniversary> accessed 2 January 2018.
[61] European Gaming and Betting Association (EGBA), 'Market Reality' <http://www.egba.eu/facts-and-figures/market-reality/> accessed 6 November 2017.
[62] Gross gaming revenue is gross turnover minus the amount paid out to customers as winnings.
[63] European Commission web page, 'Sector: Gambling' <http://ec.europa.eu/growth/sectors/gambling_en> accessed 6 November 2017.

market in Europe[64]) this sector is taken as an important industry branch due to its progression in recent years. Namely, statistical data shows that online gambling in Europe is one of the fastest growing service activities. Annual GGR in 2015 was around 16 billion EUR with growth rates of almost 17.5%.[65] It is expected that in 2020 the online gambling industry will take 22% from the overall gambling industry, and will have a GGR of 24.9 billion EUR.[66]

Growth is one of the main features of the contemporary online gambling market in Europe. Apart from the growing trend, regulatory changes have also marked the European gambling landscape. The European online gambling market is still very young and thus regulatory changes happen often. A general regulatory trend in Europe might be described as changeable, but developing towards controlled liberalization and growth of the online gambling market.[67]

Sidebar: Developments in the European gambling law landscape

Regulatory changes in some Member States liberalized the online gambling market, permitting foreign operators to request the national license and penetrate the market.[68] A new legislation in Belgium, adopted in 2014, legalized online gambling by giving permission to offline gambling service providers to expand their services in the online environment.[69] In May 2016, the French Senate amended their online gambling legislation, authorizing international liquidity sharing for online gambling companies which offer online poker. Said International liquidity sharing shall facilitate online poker playing between gamblers from different Member States. Notwithstanding uncertainties regarding further implementation of this instrument, the initiative might indicate a political will for the further development of the gambling industry.[70] Very comprehensive regulatory changes have been carried out in the Netherlands. Rapid changes in the gambling market, including online gambling, are going to take place in the years to come.[71] Maltese gambling regulators amended the gambling law; specifically, they amended its part on online skill gambling. The legislative changes in Malta have been carried out to provide a regulatory follow-up to the convergence of new technologies in the online gambling sector.[72]

Public debates on legislative changes to online gambling have been initiated in both Greece and Poland. Notwithstanding the lack of legislation on online gambling in these countries, there is a certain number of licenses for the provision of online gambling services (24 in Greece, 4 in Poland).[73] However, the rationale for the determined number of licenses is unclear. The lack of a rationale for the decided number of licenses in the case of Germany was the subject of a judicial trial. Following the Case Law of the CJEU, in April 2016 the Administrative

[64] European Gaming and Betting Association (EGBA), 'Market Reality' <http://www.egba.eu/facts-and-figures/market-reality/> accessed 2 January 2018.
[65] Ibid.
[66] European Commission web page, 'Sector: Gambling' <http://ec.europa.eu/growth/sectors/gambling_en> accessed 6 November 2017.
[67] Regulatory briefing, 9th Eastern European Gaming Summit (Sofia, November 2016).
[68] Regulatory briefing, 11th European Conference on Gambling Studies and Policy Issues (Lisbon, September 2016).
[69] Ibid.
[70] Ibid.
[71] Ibid.
[72] Ibid.
[73] Regulatory briefing, 9th Eastern European Gaming Summit (Sofia, November 2016).

Court in Wiesbaden ordered the issue of online betting licenses and to not limit the number of licenses to the previously decided number of 20.[74] Notwithstanding the strong opposition toward the development of online gambling in Germany, the regulatory landscape in this country is constantly changing.[75]

Both amazing business results and a bright outlook for the European online gambling market are challenged by the complexity of gambling regulation. Europe is a continent with approximately 50 countries, an unclear number of nations and various diverse cultures, religions and traditions. The political map of Europe consists of several different regional and international organizations, the most important of which is the European Union. This *sui generis* organization is an economic and political partnership between (to date) 28 Member States. Notwithstanding this unity, diversity in the EU is respected. Therefore, the divergent social acceptance of gambling has, as a consequence, resulted in different social norms in different European societies. It could be argued that this fact is the crucial influencing factor on the contemporary regulation of online gambling in the EU.

4 Online gambling legislation in the EU

The main feature of gambling legislation in the EU is a strong opposition towards the harmonization of the gambling legislations of Member States. Therefore, EU Member States are free as concerns the creation of their own gambling legislation. At first glance, it seems that such a reality (28 states with differing national legislation) does not tally with EU Law. However, from the perspective of EU Law, a situation in which Member States have differing national legislation on a certain domain, which are not harmonized (or unified) can be justifiable.

This section presents the contemporary legislative landscape of gambling and online gambling matters in the EU. Firstly, the main principles from EU Law that enable legislative fragmentation are pointed out. Secondly, the most important decisions from the relevant case law of the Court of Justice of the European Union that shape the freedoms that Member States have in creating their gambling legislation are presented. Finally, conforming to sources of the EU Law, the structure and definition of online gambling is given.

4.1 The foundations of contemporary gambling legislation in the EU

EU Law is composed of a set of legal sources classified in primary and secondary legislation.[76] EU Member States transpose legal principles from EU Law to their national legislation and in that way, harmonize and unify said legislation with that of all others. Harmonized national legislation is one of the cornerstones for the functioning of the EU, especially important for the proper functioning of a common market without internal frontiers, known as the EU Internal Market. The European Union competencies

[74] DLA Piper, 'Germany: Administrative court orders gambling authority to issue sports betting license' <http://blogs.dlapiper.com/mediaandsport/2016/04/germany-administrative-court-orders-gambling-authority-to-issue-sports-betting-license/> accessed 6 November 2017.

[75] Ibid.

[76] Primary legislation refers to treaties that set out basic rules for the functioning of the EU. Secondary legislation is composed of regulations, directives and decisions that additionally regulate principles and objectives embedded in treaties. For more information see: European Union web portal, <http://europa.eu/eu-law/index_en.htm> accessed 6 November 2017.

are regulated by the Treaty on European Union (hereinafter TEU) and the Treaty on the Functioning of the European Union (hereinafter TFEU).[77]

The application of EU Law has to correspond to the principles of subsidiarity and proportionality. That means that, *inter alia*, "the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at the central level or at the regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at the Union level".[78] In other words, the European Union does have competences to propose a legislative act if such an act could serve to achieve certain goals in a better way than a legislation that would be promulgated on national or regional levels. The reasons for concluding that certain goals can be better achieved at the EU legislative level rather than at national or regional levels shall be substantiated by qualitative and/or quantitative indicators.[79]

Alongside the fact that Member States and the European Union have shared competences over the regulation of certain fields, restrictions on the freedom to provide services between Member States should, in general, not exist.[80] However, EU Law does not exclude possibilities for the restriction of this freedom. Limitations to the freedom to provide services are laid down in Article 51[81] and 52[82] of the TFEU. Although these articles are related to the freedom of establishment, Article 62[83], which is an integral part of Chapter 3 (Services) of the TFEU, lays down the applicability of Articles 51 and 52 on service providing matters. Limitations to the freedom to provide services are justifiable for reasons of public policy, public security or public health.

Besides discriminatory measures, there are non-discriminatory restrictions to these freedoms, which, although irrespective of nationality, are only applicable when overriding reasons of public interest request them. The principle of non-discriminatory restrictions was confirmed by the case law of the Court of Justice of the European Union (hereafter CJEU).[84] The Case Law of the CJEU created imperative requirements for public interest protection. They are:

- consumer protection,
- protection of creditors,
- protection from unfair competition,
- enforcement of tax laws,
- functioning of the law,
- protection of health,
- environmental protection,
- media pluralism,

[77] Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union [2012] OJ S326/1 (TEU, TFEU).
[78] TFEU, Art 5(3).
[79] Consolidated version of the Treaty on the Functioning of the European Union - PROTOCOLS - Protocol (No 2) on the application of the principles of subsidiarity and proportionality [2008] OJ C115/26, art 5.
[80] TFEU, art 56.
[81] Ibid, art 51.
[82] Ibid, art 52.
[83] Ibid, art 62.
[84] C 33/74 *Johannes Henricus Maria van Binsbergen v Bestuur van de Bedrijfsvereniging voor de Metaalnijverheid* [1974] ECR 01299; C 55/94 *Reinhard Gebhard v Consiglio dell'Ordine degli Avvocati e Procuratori di Milano* [1995] ECR I-04165; C-76/90 *Manfred Säger v Dennemeyer & Co. Ltd.* [1991] ECR I-04221.

- important threat to the financial stability of the social security system,
- traffic security. [85]

These exhaustively enumerated requirements for public interest protection are very general. The CJEU Case Law specifically spread and additionally developed these requirements through case law.[86]

The above is relevant because the providing of online gambling services amounts to the providing of a service. This fact has been explicitly recognized by the Case Law of the CJEU, as the next section will demonstrate.

4.2 Gambling and the Case Law of the CJEU

In the first judgment that the CJEU gave on gambling issues, which is known as the Schindler Case[87], it was decided that gambling activities relate to the provision of services.[88] In the later rulings of the Zenatti Case[89] and Anomar Case[90], the Court followed the reasoning of the previously announced decisions. Gambling was declared a for-profit activity and, for that reason, was considered to be an economic activity. The CJEU decided that providing of gambling is a service and that because of this, gambling activities fall within the scope of the service related articles of the TFEU.[91]

Gambling has always been of public concern. But it has also been a valuable source of income that can serve the public. Therefore, countries have tended to regulate this lucrative branch of industry in a way that also served their own interests. This provides a possible explanation for the lack of a single legislative approach that regulates gambling in the EU at a level higher than national legislation. Indeed, the formal cornerstone for the different legislations on gambling activities is the fact that Member States have different public policies regarding gambling and gambling associated risks. This was confirmed by the Case Law of the CJEU. In the Omega Case[92] it was stressed that the concept of public policy might vary from one country to another and from one period to another. Therefore, any Member State has a "margin of discretion within the limits imposed by the Treaty".[93]

The Case Law of the CJEU legitimized the very broad discretion that Member States have when they regulate gambling activities. In order to protect social policy, as well as moral, religious and cultural

[85] Swiss Institute of Comparative Law, 'Study of Gambling in the Internal Market of the European Union: Final Report' (2006), 971.
[86] Ibid.
[87] C 275/92 *Her Majesty's Customs and Excise v Gerhart Schindler and Jörg Schindler* [1994] ECR I-01039 (Schindler Case).
[88] Schindler Case, para 37: "(…) the importation of lottery advertisements and tickets into a Member State with a view to the participation by residents of that State in a lottery operated in another Member State relates to a "service" within the meaning of Article 60 of the Treaty and accordingly falls within the scope of Article 59 of the Treaty."
[89] C 67/98 *Questore di Verona v Diego Zenatti* [1999] ECR I-07289 (Zenatti Case).
[90] C6/01 *Associação Nacional de Operadores de Máquinas Recreativas (Anomar) and Others v Estado português* [2003] ECR I-08621 (Anomar Case).
[91] C 124/97 *Markku Juhani Läärä, Cotswold Microsystems Ltd and Oy Transatlantic Software Ltd v Kihlakunnansyyttäjä (Jyväskylä) and Suomen valtio (Finnish State)* [1999] ECR I-06067 (Läärä Case), para18; Anomar Case, paras 43-48; Schindler Case, para 19.
[92] C 36/02 *Omega Spielhallen und Automatenaufstel lungs-GmbH Vs. Oberbürgermeisterin der Bundesstadt Bonn* [2004] ECR I-9609 (Omega Case).
[93] Omega Case, para 31.

standards, Member States have the right to prohibit gambling in their territory[94] or limit/prohibit gambling related activities (e.g. the distribution of advertisements for certain sorts of gambling)[95]. Prevention of fraud and consumer protection are also reasons that justify restrictive measures regarding gambling.[96] Member States are allowed to organize gambling in the way they consider to be most appropriate for protecting their social-policy objectives. The restrictive attitude of CJEU case law regarding the provision of gambling services is outlined in the summary of the Judgment in the Ladbrokes Case and in the summary of the Judgment in the Betfair Case: "Article 49 EC[97] must be interpreted as not precluding the legislation of a Member State, (…) under whose exclusive rights to organize and promote games of chance are conferred on a single operator, and which prevents any other operator, including an operator established in another Member State, from offering services via the internet within the scope of that regime in the territory of the first Member State."[98]

Through comparison, one will notice that the CJEU's position on online gambling is not different to that held in its rulings in cases of physical gambling. Member States are entitled to hold the position that an internet gambling operator that is lawfully established in another Member State, and which offers services via the Internet, cannot offer sufficient assurances that national consumers will be protected against the risks of fraud and crime, due to the fact that different states could have different assessments regarding the professional qualities and integrity of operators in this field.[99]

However, the ability of Member States to adopt restrictive measures and to limit gambling activities is not limitless. Activities in the gambling sector have to be limited in a consistent and systematic manner.[100] The CJEU confirmed that restrictions must not go beyond what is necessary to attain public goals.[101] In the Läärä Case, the CJEU stressed that "(…) obstacles to freedom to provide services arising from national measures which are applicable without distinction are permissible only if those measures are justified by overriding reasons relating to the public interest, are such as to guarantee the achievement of the intended aim and do not go beyond what is necessary in order to achieve it."[102] Therefore, any prohibition must be suitable for achieving the targeted objectives.[103] In later decisions the CJEU has entitled Member States to introduce a public monopoly over the organization of gambling as a measure that serves to combat the dangers of gambling, but which has to be conducted in a consistent and systematic manner.[104] In other words, a public monopoly is justifiable only if it is designed to prevent gambling-related risks. The CJEU decided that developing the gambling industry in

[94] Läärä case, para 35.
[95] Schindler Case, paras 100-03.
[96] Anomar Case, paras 62, 73.
[97] Now replaced by article 56 of the TFEU.
[98] C 258/08 *Ladbrokes Betting & Gaming Ltd and Ladbrokes International Ltd v Stichting de Nationale Sporttotalisator* [2010] ECR I-04757 (Ladrokes Case), Summary of the Judgment; C 203/08 *Sporting Exchange Ltd v Minister van Justitie* [2010] ECR I-04695 (Betfair Case), Summary of the Judgment.
[99] Ladbrokes Case, para 54.
[100] European Commission, 'Summaries of important judgments: Criminal proceedings against Massimiliano Placanica (C-338/04), Christian Palazzese (C-359/04) and Angelo Sorricchio (C-360/04), judgment of 6 March 2007' (May 2007) <http://ec.europa.eu/dgs/legal_service/arrets/04c338_en.pdf> accessed 20 November 2017.
[101] Study of the Gambling in the Internal Market of the European Union (n 85) 978.
[102] Läärä Case, para 31; Zenatti case, para 29.
[103] C 243/01 *Criminal proceedings against Piergiorgio Gambelli and Others* [2003] ECR I-13031 (Gambeli Case), para 67.
[104] Court of Justice of the European Union, 'Press Release No 78/10' (September 2010).

order to increase public income is not a measure that justifies the existence of a public monopoly.[105] In addition, non-licensed service providers have to be treated the same under the competent law, regardless of their place of origin.[106] The CJEU has also decided that imposing restrictions on a free movement of capital and payments has to be "no more than the inevitable consequence of any restrictions on the freedom to provide services"[107]. Therefore, any prohibition of a pay-out or of the placing of a deposit for gambling purposes imposed by Member States, has to be as a consequence of the previous restrictions on the provision of gambling services.

It could be underlined that the CJEU provided general principles regarding the regulation of gambling activities in the internal market. Certain decisions explain what gambling is. However, the structure of gambling and online gambling has remained sketchy in the case law of the CJEU. Nevertheless, other sources of EU law, as well as the political documents adopted that are relevant to gambling, contain more details about the elements of online gambling as a service.

4.3 The legal structure of online gambling

The legal notion of gambling has been discussed since the first decisions of the CJEU that were related to gambling. The legal definitions of gambling and online gambling have been developed through the case law of the CJEU, but also by both political and legal documents on gambling issues adopted by other EU institutions. In general, it could be said that the legal definition of online gambling has broadened in order to meet with the contemporary business practice of providing online gambling services.

The first of said cases decided by the CJEU defined gambling as games of chance.[108] Alongside that, the CJEU in the Schindler Case proclaimed that gambling was a service. The judgment provided an additional explanation of what a lottery, as a type of gambling, is - "The services at issue are those provided by the operator of the lottery to enable the purchasers of tickets to participate in a game of chance with the hope of winning, by arranging for that purpose for the stakes to be collected, the draws to be organized and the prizes or winnings to be ascertained and paid out."[109] In the CJEU decisions on gambling that followed, gambling activities were not just considered as pure games of chance. In the Zenatti Case, the court widened the meaning of gambling activities to included skills as an integrative part of gambling.[110]

The EU legislators announced a set of directives that explicitly exclude gambling activities from their scope of regulation. These directives also provide a sort of definition of gambling activities. The E-commerce Directive[111] explains gambling activities as "activities which involve wagering a stake with monetary value in games of chance, including lotteries and betting transactions"[112], while the EU

[105] Ibid.
[106] Court of Justice of the European Union, 'Press Release No 75/10' (July 2010).
[107] C 42/07 *Liga Portuguesa de Futebol Profissional and Bwin International Ltd v Departamento de Jogos da Santa Casa da Misericórdia de Lisboa* [2009] ECR I-07633 (Bwin case), para 47.
[108] Zenati Case, para 49.
[109] Schindler Case, para 27.
[110] Zenati Case, para 18.
[111] The European Parliament and the Council Directive 2000/31/EC of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market [2000] OJ L178/1 (E-commerce Directive).
[112] E-commerce Directive, art 1(5)(d)(iii).

Directive 10/13 (AVMSD)[113] provides a slightly different definition of gambling activities - "(…) games of chance involving a stake representing a sum of money, including lotteries, betting and other forms of gambling services (…)"[114]. Finally, the Service Directive[115] excludes gambling activities from its scope of regulation explaining gambling activities as those "which involve wagering a stake with pecuniary value in games of chance, including lotteries, gambling in casinos and betting transactions"[116].

Since 2011, the European Council and European Commission have published a set of legally non-binding documents that include a definition of online gambling. The Green paper on online gambling[117] (hereinafter Green paper) emphasizes the role of the internet and other interactive technologies that are used to offer gambling services to consumers, to allow consumers to bet or gamble against each other, or for distribution purposes.[118] The Green paper defines online gambling services as "any service which involves wagering a stake with monetary value in games of chance, including lotteries and betting transactions that are provided at a distance, by electronic means and at the individual request of a recipient of services".[119] Finally, in the latest proclaimed document, the EC Recommendation, online gambling is defined as "any service which involves wagering a stake with monetary value in games of chance, including those with an element of skill, such as lotteries, casino games, poker games and betting transactions that are provided by any means at a distance, by electronic means or any other technology for facilitating communication, and at the individual request of a recipient of services".[120]

This latest definition of online gambling in the EC Recommendation seems the most comprehensive and complete. The definition proposed by this document additionally develops a notion of gambling activities (online gambling specifically), combining it with a legal notion of an information society service. The concept of 'monetary value' was already included instead of concepts that already exist in the E-commerce Directive and Service Directive ('stake representing a sum of money' or 'wagering a stake with pecuniary value'). New elements such as, 'at a distance', 'by electronic means' and 'at the individual request of a recipient of service' are attached. These elements are features of the information society service defined by the E-commerce Directive. Essentially, 'at a distance' and 'at the individual request' apply to the direct on-line request from the recipient to the online gambling service provider without the engagement of any intermediaries.[121] However, the expression '(…) by electronic means or any other technology for facilitating communication (…)' goes beyond the notion of the information society service given by the EU directives. It is likely that the rationale behind the inclusion of a newly added solution ('any other technology for facilitating communication') is linked to the need to update a

[113] The European Parliament and the Council Directive 2010/13/EU of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services [2010] OJ L95/1 (Audiovisual Media Services Directive).

[114] Audiovisual Media Services Directive, Recital 22.

[115] The European Parliament and the Council Directive 2006/123/EC of 12 December 2006 on services in the internal market [2006] OJ L376/36 (Service Directive).

[116] Service Directive, art 2(2)(h).

[117] European Commission, 'Green Paper on on-line gambling in the Internal Market' [2011] COM/2011/0128 final

[118] Green paper, sec 2.1.

[119] Green paper, sec 2.1.

[120] EC Recommendation, art 3(a).

[121] See Green paper, footnote 51.

pretty old legal definition of 'electronic means' that ought to be extended toward a new legal notion that is suitable to cover the development of new technologies in the coming years.[122]

5 Ethical discourses in relation to gambling and its regulation

Policy makers are supposed to respect the dominant ethical position of particular society, focusing on its prevailing system of values. Ethical standards set cornerstones, ideas and plans for how gambling legislations should look, as well as reveal reasons for regulatory solutions from the past. This part of the chapter complements the understanding of the gambling domain by outlining ethical discourse that has been engaged with in relation to gambling. The first section reveals reasons for the specifics of gambling regulation that have been existing since the first regulatory initiatives emerged in Medieval Europe. Afterwards, the discussion focuses on ethical issues that are relevant for the contemporary regulatory landscape in the EU.

5.1 Gambling regulation: Between prohibitionism and liberalism

During the transition between the end of the 17th century and the beginning of the 18th century, French cities were attracting gamblers from all over Europe. Following the need to protect gamblers, the Resolution on Hazardous Games was announced in France in 1697.[123] This document provided general guidelines on how to gamble and a not so formidable code of practice that lacked any deep philosophical observation of gambling-related problems.[124] During that period, French moralists[125] were arguing against gambling and its reprehensible consequences. In general, their claims were used to persuade people of their time not to gamble. The justification for such a position is summarized as follows: Gambling spoils an individual's ability to reason; gambling poisons gamblers' relations with others; gambling makes a gambler neglect his religious and social duties.[126]

French moralists appeared to be adherents of prohibitionism when it came to gambling. From the perspective of prohibitionism, the most desirable approach to gambling is one that strictly forbids it. If it is not utterly forbidden, then it should be permitted as little as possible and systematically discouraged.[127] Alongside prohibitionism, two other main ethical approaches toward gambling and gambling policies might be extracted – libertarianism and restrictivism.[128] In contrast to the prohibitionists, libertarians did not demarcate gambling from other consciously chosen and potentially harmful activities. According to libertarians, individuals capable of making decisions and who are not influenced by misinformation or a condition that limits their capacity to make an informed choice,

[122] According to Directive 98/34, Article 1(2) "'by electronic means' means that the service is sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data, and entirely transmitted, conveyed and received by wire, by radio, by optical means or by other electromagnetic means". Despite the broad scope of technology covered by the definition of electronic means laid out in Directive 98/34, it should be stressed that the definition is 20 years old and that the Directive is no longer in force.

[123] John Dunkley, *Gambling: a social and moral problem in France* (The Voltaire Foundation 1985) 58.

[124] Ibid.

[125] Jean Frain Du Trembley, Jean-Baptiste Thiers, Jean La Placette, Jean Barbeyrac.

[126] Dunkley (n 123) 85.

[127] Peter Collins and others, 'Responsible Gambling: Conceptual Considerations' (2015) 19 Gaming Law Review and Economics 594, 596.

[128] Ibid.

should be free to make their own decisions regarding gambling. Lastly, restrictivism placed itself at the halfway point between prohibitionism and libertarianism.[129]

Sophisticated thoughts about the relation between libertarianism and restrictivism can be found in the works of British philosopher Jeremy Bentham. In his *Principles of Morals and Legislations*, he separates laws into three categories: laws that are created to protect a person from harm caused by other people; laws created to protect a person from harm caused by him/herself; and laws that require that a person helps and assists others.[130] However, he holds that only the first category of law is fully legitimate. His opinion comes close to a libertarian view, but he also considers legislation that serves to protect people from themselves to be a legitimate part of the law. This part of the law should be governed in accordance with principles of 'legal paternalism'.[131] In other words, a state's coercion against a citizen's personal will is justifiable, if it is necessary to protect a citizen from harm (regardless of where such harm may originate from). Nevertheless, taking into consideration the harmful effects of certain activities, it is not easy to clearly determine all of the possible harmful effects or possible victims. Thereby, the unified benchmark of legal paternalism, its taxonomy and its protective properties are not easy to designate.

Even though such a theoretical discussion could be considered quite vague, the following example sheds light on the complexity of legal paternalism in relation to gambling - An excessive way of gambling is a risky way[132] of gambling behavior. If we presume that a gambler is used to gamble in an excessive manner, there is a probability that he jeopardizes his health.[133] Therefore, said gambler and his excessive gambling deserve proper observation and subsequent diagnosis, medical care and treatments. In states with a publicly organized, financed and egalitarian medical service, medical support should be provided to all people with eroded health states. The medical treatment of a gambling addict requests the spending of a certain amounts of funds. Indirectly, the taxpayers bear the cost of the treatment and for that reason they are hit by 'harm caused by other people'. Moreover, a gambling addict erodes not only his/her health, but also their wealth and personal relations. Thus, in an immediate sense, the harmful effects of gambling could hit family members and friends. Following the principles of legal paternalism, a state has a duty to introduce and enforce law that protects a gambler from his/her own actions. Nevertheless, this is not the sole reason, and because of this, Hospers emphasizes the distinction between impure and pure paternalism.[134] As the example demonstrated, protection should be granted not only to an individual (pure paternalism), but also to a gambler's family members, friends and to broader society (impure paternalism).

Taking gambling-related harm into consideration, the leading question is: Why should societies accept and tolerate something that may provoke harm? John Stuart Mill in his *On Liberty* takes a prohibitive position against misconducts (gambling, drunkenness, incontinence, idleness and uncleanliness) that injure overall wellbeing and hinder improvement.[135] Nevertheless, he notes that some acts in society are either constantly permitted or prohibited. He expresses skepticism towards the idea of an impartial

[129] Ibid 597.
[130] John Hospers, 'Libertarianism and Legal Paternalism' (1980) IV The Journal of Libertarian Studies 255.
[131] Ibid.
[132] More about gambling-related risks is presented in III chapter.
[133] Gambling addiction is undisputable health problem and more about in the 3rd chapter.
[134] Hospers (n 130) 259.
[135] John Stuart Mill, *On Liberty* (Batoche Books 2001), 74.

agent that is capable of deciding upon what is good and what is bad, and of establishing an utterly fair social convention. Therefore, he advocates for personal freedom that is not influenced by others. Mill reconciles the need for prohibitive standpoints regarding harmful actions on the one side and personal freedom on the other, justifying gambling as an activity that is difficult to prohibit.[136] In contrast to the French moralists of the 17th century and their prohibitive attitudes towards gambling and the consequences gambling carry for individuals, society and religion, Mill's thoughts tally with human freedom and the reality that the prohibition of gambling is a Sisyphean task.[137]

Jeremy Bentham and John Stuart Mill are some of the most prominent representatives of the utilitarian doctrine. One of the core utilitarian ideas is based on the limitation of individual freedoms as a necessary measure for harm prevention. Besides this idea, the utilitarian doctrine lays down that it is not possible to create a system that is 'immediately beneficial for every individual' and, furthermore, that the highest degree of welfare achievable for everybody brings suboptimal results in an accepted reality.[138]

5.2 Contemporary ethics of gambling regulation – The CJEU's perspective

In one of the first CJEU rulings regarding gambling – the Schindler Case – the Court tried to declaratively keep an ethically neutral position on gambling. According to the Court's findings, the morality of gambling is debatable, but the harmful nature of gambling is undisputable. The Court left room for different regulative approaches, stating that gambling should not be treated as any other illegal product.[139] Making comparisons with other products and activities, the Court in Schindler case asserted that lotteries are an example of entertainment akin to amateur sports. Common features are found in their recreational aspects and in the uncertainty of an event's result.[140] The Court then pointed to the peculiar nature of gambling as justification for the restrictions imposed by Member States' gambling legislation.[141] Justifications for restrictions can be grounded on the differences of the moral, religious or cultural aspects of Member States.[142] Apart from these grounds of justification for restrictive national gambling legislation, the CJEU considers public policy, public security, public health,[143] the financially harmful consequences associated with gambling that may affect individuals and society,[144] and the high risk of crime and fraud that incites individuals to spend money that may damage their lives and have adverse social consequences, as the main threats to moral, cultural and social domains of a society,[145] and as providing legitimate reasons for gambling restrictions. Nevertheless, the Court asserts that gambling may contribute "to the financing of benevolent or public interest activities such as social works, charitable works, sport or culture".[146] Therefore, the CJEU has taken a balanced approach to the regulation of gambling, permitting Member State authorities to have "a sufficient degree of latitude to

[136] Ibid 92.
[137] Ibid 92.
[138] Lino A. Graglia, 'Government Promotion of Moral Issues: Gambling, Smoking and Advertising' (2008) 31 Harvard Journal of Law and Public Policy 69, 70.
[139] Schindler Case, para 32.
[140] Ibid, para 34.
[141] Ibid, para 59.
[142] Bwin Case, para 57.
[143] Ibid, para 56.
[144] Gambeli Case, para 63.
[145] Schindler case, para 60.
[146] Schindler case, para 60.

determine what is required to protect the players (…), to maintain order in society, as regards the manner in which lotteries are operated, the size of the stakes, and the allocation of the profits they yield".[147]

In light of the Schindler case, Member States are not only allowed to limit the provision of gambling services, but to also take a fully prohibitive approach.[148] However, if gambling activities are not prohibited, but allowed in a restrictive manner, their organization has to be carried out in a way that limits gambling opportunities in a non-disproportionate way.[149] Therefore, restrictions against gambling activities are not justifiable if they only serve to increase public funds for the financing of benevolent social activities. Financing social activities through gambling should only form an "incidental beneficial consequence and not the real justification for the restrictive policy adopted".[150]

The CJEU decided that restricting gambling as a source of private profit is also justifiable.[151] According to the Court, it is unacceptable to permit "private profit to be drawn from the exploitation of social evils or the weakness of players and their misfortune."[152] However, whereas a private business initiative could be restricted, a state monopoly is quite legal and not unusual in Europe. In the decades immediately after World War II, specifically between the 1950s and 1970s, gambling in Finland was organized and even encouraged by the state. The involvement of the state in such a manner influences citizens' beliefs that gambling revenues are used for the 'public good'.[153] Notwithstanding the fact that Member States may regulate gambling in accordance with their non-harmonized national public polices, any restrictive measure has to be suitable for achieving proclaimed goals that are in line with moral, cultural and social standards.[154] For that reason, proposed national gambling regulations need to pass a proportionality test.[155] In addition, regardless of the level of restrictions, if gambling services are legal, their integrity has to be preserved. In other words, fair play is considered as an objective of 'public interests and legitimate social purpose' and thus, has to be guaranteed.[156] The Schindler case set the ethical and judicial stances (lines of reasoning) that have been used as a benchmark for subsequent CJEU decisions on gambling related issues. However, the Schindler case refers to lotteries, not other types of gambling. The lottery is a game of pure chance. This is not the case with all other types of gambling. Yet, there is no clear distinction between games of chance and games of skill. The national gambling legislations of EU Member States regulate this distinction very differently. Nevertheless, this distinction exists. Games of chance are those whose outcomes depend utterly on randomized results, realized from a direct human intervention in selection processes. Human intervention is not fully excluded. The rules of the game and the related infrastructure, at the very least, have to be set up by somebody. Therefore, fair software that serves gambling purposes in games of chance has to be created, tested and certified by humans,

[147] Ibid, para 61.
[148] Zenatti Case, para 15.
[149] Gambeli Case, para 62.
[150] Zenatti Case, paras 35, 36.
[151] Ibid, para 30.
[152] Joined cases C 447/08 and 448/08 *Criminal proceedings against Otto Sjöberg and Anders Gerdin* [2010] ECR I-06921, para 43.
[153] Riitta Matilainen and Pauliina Raento, 'Learning to gamble in changing sociocultural contexts: experiences of Finnish casual gamblers' (2014) 14 International Gambling Studies 432, 437-38.
[154] Gambeli Case, para 67.
[155] C 64/08 *Criminal proceedings against Ernst Engelmann* [2010] ECR I-08219, paras 32-40.
[156] Anomar Case, para 72.

but this process should not influence the randomness of the result. Contrary to games of chance, the outcomes of games of skill do not solely depend on chance. In these types of games, mental and/or physical abilities influence the outcome. Skills have an important (or prevalent) role in determining a result even if chance cannot be fully excluded.

The distinction between games of chance and games of skill creates a dilemma as to whether the same moral, cultural and religious standards are applicable to both types of games, regardless of their differences. In the Zenatti case, the CJEU decided that despite the differences between lotteries and sports betting (the latter of which is not a pure game of chance according to the Court's interpretation), the same risk of crime and fraud exists for both, and therefore the same negative consequences might be provoked by each game.[157] The Court pointed to the "expectation of cash winnings in return for a stake" as the element that makes both types of games comparable.[158]

Observing the CJEU Case Law, Planzer claims that all public concerns regarding gambling "can be summarized under two justification grounds: consumer protection and public order".[159] Taking into consideration the lack of harmonized or unified standards of consumer protection in the gambling domain in the EU, the first justification ground refers to national consumer protection and gambling legislation. The second justification ground (public order) is much broader, and cannot be clearly determined. Public order colligates various elements of overriding public interests and creates an elusive concept prone to different interpretations. Planzer gives credence to the contemporary approach toward public order, addressing a specific relation between ethics and international law. This relation is described as a dichotomy between universality and diversity. Namely, cultural diversities influence the contemporary interpretation and application of universal human rights. The European Court of Human Rights has applied a very broad margin of appreciation regarding public morality. On the one hand, if the margins are too broad and cultural diversity is interpreted very extensively, the system of universal human rights would be in danger. On the other, if the courts would not respect cultural and, consequently, moral diversity, then their decisions would be exposed to the risk of hampered acceptance.[160] CJEU case law in the gambling domain, which has sought to attain a balance between EU law and different ethical standards, epitomizes the universality-diversity dichotomy.

Verbeke argues that gambling regulation in Europe is hypocritical. According to his opinion, states call upon different moral, religious, cultural and other values in order to secure exclusive national control over one of the most lucrative businesses. Expressing his criticism as to the sincerity of EU Member States as concerns market restrictions, he underscores a massive promotion of state-sponsored gambling activities. Due to the internationalization of gambling-related crimes, Verbeke refutes protection against fraud and crime at the national level. In addition, he expresses doubts as to the superiority of national protection systems against gambling addiction. Finally, he notices that national gambling legislations are not underpinned by scientific-based evidence.[161] Verbeke's criticism is not without support from CJEU case law. The CJEU noticed that national gambling regulators and competent

[157] Zenatti Case, para 18.
[158] Zenatti Case, paras 16, 18.
[159] Planzer (n 40) 66.
[160] Ibid 104, 105.
[161] Alain-Laurent Verbeke, 'Gambling Regulation in Europe: Moving Beyond Ambiguity and Hypocrisy' in Alan Littler and others (eds), *In the Shadow of Luxemburg: EU and National developments in the Regulation of Gambling* (Martinus Nijhoff Publishers 2011) 256-58.

authorities regulate gambling issues in a restrictive manner, prohibiting the provision of gambling services from foreign operators, but stipulating a national monopoly over the provision of such services or stipulating the provision of services by operators licensed by the domestic gambling regulator.[162] Such practice is not illegal if it does not go beyond what is necessary to achieve certain objectives.[163] Therefore, Member States must be able to demonstrate the suitability of the regulation for achieving certain goals as to the preservation and maintenance of moral, religious and cultural standards. Whereas Verbeke alludes to the need for science-based evidence to demonstrate the suitability of a regulation, the CJEU requires *a fortiori* evidence, regardless of its type (statistics or other evidence).[164] On the one hand, the absence of evidence regarding the effectiveness of a gambling regulation with respect to achieving previously determined objectives may lead us toward the conclusion that even Verbeke's criticism is not based on scientific evidence. On the other hand, the CJEU indicated in several cases that it is difficult to justify restrictive national legislation as being necessary for the protection of moral, religious and cultural aspects of societies, due to the lack of evidence that underpinning such measures.

6 Conclusion

A look back into history has demonstrated that gambling has consistently pervaded all layers of society, and has influenced social, religious and cultural factors. People everywhere have been gambling, throughout the ages, and regardless of the circumstances. Thus, the prohibition of gambling is not a feasible long-term strategy. However, liberalization, as an opposing strategy to prohibition, has resulted in undesirable social consequences. Balancing the risks and benefits of gambling by regulating it, countries have tended to reconcile the state's need to accommodate the social practices of gambling, as well as the financial benefit that can be derived from the gambling business, on the one side, and adequate protection of gamblers on the other. Yet, the relationship between these two goals has not yet reached a perfect, nor harmonized, equilibrium. Therefore, some states hold a more prohibitive attitude towards gambling, whereas others take a liberal approach and favor business interests.

Today, gambling is understood as an economic activity of a special nature.[165] For that reason, restrictivism characterizes contemporary EU Member States' gambling regulations. Gambling is not forbidden, but restricted in its scope and to national borders. There are various realms in which European nations and countries do not share common ethical standards, and gambling is one of them. It is not an idiosyncratic feature, due to the distinctive approaches taken towards gambling by different societies all around the globe. Therefore, the creation of an amenable form of gambling regulation is a persistently hot topic among, and within, European countries. Nevertheless, due to a lack of evidence it remains unclear whether regulating gambling on the national level is more effective for the protection of online gamblers than a harmonized regulation among EU Member States would be.

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[162] Joined cases C 316/07, 358/07, 359/07, 360/07, 409/07 and 410/07 *Markus Stoß, Avalon Service-Online-Dienste GmbH and Olaf Amadeus Wilhelm Happel v tegen Wetteraukreis and Kulpa Automatenservice Asperg GmbH, SOBO Sport & Entertainment GmbH and Andreas Kunert v Land Baden-Württemberg* [2007] ECR I-08069 (Markus Stoß Case), para 66.

[163] Joined cases C-338/04, 359/04 and 360/04 *Criminal proceedings against Massimiliano Placanica, Christian Palazzese and Angelo Sorricchio* [2007] ECR I-01891, paras 48, 49.

[164] C 42/02 *Diana Elisabeth Lindman* [2003] ECR I-13519, para 26.

[165] European Parliament Resolution 2012/2322(INI) on online gambling in the internal market, A7-0218/2013, 10 September 2013, recital H.

Touching upon ethical discourses surrounding gambling in Europe, the CJEU's case law justified the regulation of gambling at the national level by considering it a Member State's right to conduct their moral, cultural and religious standards. Therefore, nowadays, EU Member States are ultimately responsible for their gambling legislation. Notwithstanding non-harmonized legislative standards at the EU level, certain common rules deriving from EU law regarding online gambling can be identified:

- online gambling is a service, as defined by the TFEU;
- online gambling is an information society service, as defined by the EC Recommendation;
- the provision of online gambling services is regulated by Member States, and States can ignore some of the principles regarding the freedom to provide services in the EU laid down by the TFEU;
- Member States' gambling legislation may contain restrictive measures regarding the provision of gambling services if those measures are there to achieve proclaimed public policy goals;
- restrictive measures have to be justifiable.

Chapter III: Gambling-related risks and challenges to responsible gambling

1 Introduction

This chapter sheds light on the risks that jeopardize the protection of online gamblers and challenge responsible gambling. The first part of the chapter discusses gambling-related risks. It outlines the concept of gambling-related risk and then shifts to gambling-related harms and problem gambling. The section dedicated to problem gambling explains said phenomenon as being of central concern to responsible gambling. The second part of the chapter then works towards a conceptualization of responsible gambling and what it entails. Responsible gambling is the leading concept with regards to the contemporary protection of gamblers. Therefore, this concept is delineated from several perspectives. The chapter provides contemporary opinions, understandings, principles and problems related to responsible gambling. By explaining the concept of responsible gambling, as well as gambling-related risks, the chapter aims to answer the questions as to how it is possible to promote responsible gambling and what should be established in terms of protecting online gamblers.

2 What is gambling-related risk?

In the literature, risk is delineated as a multifold concept. It is defined in numerous ways, and has a lot of different meanings. Different scientific fields contain various normative and descriptive explanations of risk. Moreover, public perception of risk can differ from scientific explanations.[166] Factors such as the novelty of risk, dread,[167] spatial elements, interpretations and understandings of information, all have repercussions on the public assessment of risk. Risk could be perceived as an antonym of safety, but due to the broad (and probably limitless) contextualization of both concepts, this view should be taken with caution.[168] Risk is also an undesirable and unintended outcome of certain events or activities, even if not necessarily unforeseeable.[169] Thus, there exist various understandings that outline this concept of risk in several different ways.[170]

[166] Rolf Lidskog and Goran Sundqvist, 'Sociology of Risk' in Sabine Roeser and others (eds), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012) 1007-10.
[167] Dread primarily refers to a psychological state. However, with their claim that a "human being is neither a puppet, nor her own master", Lidskog and Sundqvist tend to emphasize the importance of social influence on various human processes.
[168] Niclas Moller, 'The Concept of Risk and Safety' in Sabine Roeser and others (eds), *Handbook of Risk Theory - Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012).
[169] Ibo van de Poel and Jessica Nihle´n Fahlquist, 'Risk and Responsibility' in Sabine Roeser and others (eds), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012) 885-86.
[170] Moller (n 168) 58.

Gambling is a popular kind of entertainment. However, it also involves culture, sport, education and scientific research.[171] Thus, various spheres such as personal health, personal wealth, personal relations, health policies, youth policies, public policy, the economy and public finances, could be disrupted by gambling-related harms. Therefore, it is likely that there are two general, but mutually connected spheres that are exposed to gambling-related risks – the private and public.

While gambling, gamblers anticipate certain results whilst hoping for desirable outcomes. Thereby, they take a risk regarding the possibility of an undesirable outcome that would lead to a loss in terms of the gamblers' wealth. For these reasons, uncertainty marks the period between the wagering of the stake and the eventual outcome. Uncertainty influences psychological processes[172] and can provoke various health related and social problems. However, gamblers voluntarily take such a risk in order to stimulate a positive emotional experience. Gambling reinforces various emotions such as relief from boredom, the feeling of accomplishment, and the 'rush' associated with seeking excitement. In addition, higher levels of excitement are provoked the greater (riskier) the risk-taking activity is.[173] Excitement is followed by bio-chemical processes that may temporarily, or even permanently, affect a regular bio-chemical balance and so disrupt a gambler's health.[174] In this case, problem gambling can be viewed as a mental health disorder. Such a disorder could then become the reason for depression, suicide attempts, separations, divorce, legal trials and the erosion of professional relations.[175] In view of this, it could be argued that gamblers expose various domains of their life – such as their emotional, financial, material, occupational, legal, familial and cordial domains – to risk. Based on this assumption, it appears that gamblers put three spheres of their life at risk:

- Health (particularly mental health)
- Wealth (finances, real estate and other elements of personal wealth)
- Social (family and friendships, as well as employment, education etc.)

Claims that gambling may erode one's personal sphere of life refer to a risky gambling lifestyle that, according to Planzer, emerged "along the line of abstinence – consumption – abuse – addiction".[176] Nevertheless, taking risks and gambling may lead to negative consequences not only in one's personal domain, but also in the public domain.

Negative consequences in the personal and private domains intertwine with each other. However, there are also positive effects related to gambling. Bearing this in mind, it is important to mention that the negative and positive outcomes of gambling are interlaced. For instance, the gambling industry may

[171] Tjeerd Veenstra, 'State Licensed Lotteries and Totto Companies in the Legal and Political Debate in the European Union' in Alan Littler and Cyrille Fijnaut (eds), *The Regulation of Gambling – European and National Perspective* (Martinus Nijhoff Publishers 2007) 64.

[172] More about in subsection 3.3 in this chapter: Problem gambling as a medical disorder.

[173] Penny Neal, Paul Delfabbro and Michael O'Neil, 'Problem Gambling and Harm: Towards a National Definition' (Commissioned for The Ministerial Council on Gambling, prepared by The SA Centre for Economic Studies with the Dept. of Psychology, University of Adelaide. Published on behalf of Gambling Research Australia, November 2005) 4.

[174] Alex Blaszczynski and Lia Nower, 'A pathways model of problem and pathological gambling' (2002) 97 Addiction 487.

[175] Henry R. Lesieur and Sheila B. Blume, 'The South Oaks Gambling Screen (SOGS): A New Instrument for the Identification of Pathological Gamblers' (1987) 144 American Journal of Psychiatry 1184.

[176] Simon Planzer and Alberto Alemanno, 'Lifestyle Risks: Conceptualizing an Emerging Category of Research' (2011) 4 European journal of risk regulation 337, 337.

influence economic development. The gambling industry could create new jobs and these new jobs might contribute to a rise in public income. However, new jobs are neither sufficient nor necessary for economic development.[177] In general, incomes are used for consumption, or to acquire wealth (hence, wealth might be perceived as unused or unconsumed income). Grinols claims that economic development means greater income and wealth that leads to the greater utility of a society.[178] In addition to new jobs, the gambling industry may stimulate investments in related industry branches (e.g. tourism) and bring revenues to public funds.[179] However, apart from the fact that the development of a certain industry branch might affect other parts of industry (both negatively and positively), gambling brings adverse social impacts that could disrupt plans for economic development. Taking into account personal economic issues, it has to be emphasized that gambling might provoke difficulties in relation to players' capabilities to acquire wealth. As a result, developments in the gambling industry of a certain country or region may result in the rise of certain negative effects on their citizens' wealth. Apart from spending more on gambling than one earns, a gambler might face gambling-related costs such as those accrued from treatment sought to help with their gambling habits or costs that may occur as a consequence of a breaking down of personal relations (e.g. divorce costs). If the overall social costs in a society, region or country related to the adverse aspects of gambling development (e.g. costs related to police incidents, court cases, jail costs, or the cost of gambling-related treatment initiatives) and the costs of economic changes (e.g. costs related to job changes, or productivity) are higher than the overall benefits, then the economy is in danger.[180]

Developments in gambling and the potential for adverse gambling-related consequences have to be observed in a contextual way. Namely, people of specific socio-demographic and socio-economic characteristics (e.g. specific age, education, ethnicity, employment status, way of life) are at higher risk of becoming problematic gamblers than those without said characteristics.[181] Also, some groups of people are more exposed to the risks of becoming problem gamblers due to their psychological and genetic predispositions.[182] Groups of people exposed to a higher risk of becoming problem gamblers are known as vulnerable groups.

Gambling is also a source of crime[183] and gamblers are more prone to committing crime.[184] Nevertheless, gamblers (including those with a disrupted health state) are just one group of people amongst those prone to gambling-related crimes. Crimes such as illegal gambling, loan sharking, match fixing, or money laundering are all examples of criminal activities that are connected to gambling, but

[177] Earl L. Grinols, *Gambling in America: Costs and Benefits* (Cambridge University Press 2004), 56-57.
[178] Ibid, 57.
[179] Ibid, 96.
[180] Yliya Crane, 'What are the Cost and Benefiths of Gambling in the United Kingdom?' in Tom Coryn, Cyrille Fijnaut and Alan Littler (eds), *Economic Aspects of Gambling Regulation: EU and US Perspectives* (Martinus Nijhoff Publishers 2008).
[181] Heather Wardle and others, *British Gambling Prevalence Survey 2010* (National Centre for Social Research 2011) 89-94.
[182] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*: Fifth edition (American Psychiatric Association 2013) 588.
[183] David Miers, 'Regulation and the management of risk in commercial gambling in Great Britain' (2015) 15 International Gambling Studies 422.
[184] Toine Spapens, 'Crime Problems Related to Gambling – An overview' in Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhoff Publishers, 2008) 48-50.

which could also be committed by non-gamblers.[185] As far as the occurrence of crime is both a social and personal concern, it has to be pointed out that service providers may also engage in activities that interrelate with crime. The non-payment of winnings, avoiding tax, fraud related to financial transactions, and the infection of computers with viruses, are all examples of illegal activities that could be conducted by service providers.[186]

Above all, gambling related risks jeopardize gamblers' health and lives. In addition, various crimes are committed as a consequence of gambling and/or are connected to gambling. The crimes cannot be easily classified into a specific group due to their diversity. Nevertheless, there can be no doubt that gambling-related risks create ramifications that jeopardize not only the personal sphere of an individual's life, but also their broader social and economic structures.

3 Gambling-related harms and problem gambling

The occurrence of gambling-related harms is a consequence of risk-taking activities. Different spheres that could be jeopardized by gambling are recognizable and predictable. Considering that one of the main goals of this research is to indicate opportunities for the better protection of online gamblers, particular attention is given to the private spheres of the lives of gamblers, which are put in danger. For that reason, this study focuses on the concept of problem gambling. The following section gives an account of gambling-related harms and problem gambling in particular.

3.1 Conceptualizing gambling-related harms

Most works in the field of gambling studies focus on gambling-related harms and the preceding risks related to a gambler's personal sphere. Particular attention is given to problem gambling as a health disorder. Summarizing the definitions found in the literature, Etches and Rigbye conceptualize gambling-related harm as a harm that refers "to any significant negative consequences which result from gambling in excess of what the consumer can afford in terms of either time or money."[187] In addition, they address Blaszczynski's approach toward the conceptualization of gambling-related harm for a more detailed delineation.

> *"These parameters set the threshold of affordability for gambling; once the disposable income and time thresholds are exceeded, opportunity costs are incurred; that is, money and time intended for other expenses or social/family purposes are redirected to gambling. In this context, harm emanating from these two sources can range along a continuum from intermittent and inconsequential to recurrent and extremely severe; such harms can be construed as potentially affecting the full spectrum of participants from recreational through to problem gamblers."*[188]

However, the different stakeholders in the domain of gambling are concerned with their specific points of interests. For instance, policy makers and regulators are concerned with the legality of gambling; public health stakeholders are concerned about the occurrence of health disorders that may be provoked by gambling; economists and financial institutions are concerned about problems related to

[185] Ibid 21-44.

[186] Alan Littler, *Member States versus the European Union – The Regulation of Gambling* (Martinus Nijhoff Publishers 2011) 48.

[187] Marc W. Etches and Jane L. Rigbye, 'Introduction in Special Issue on Harm Minimization in Gambling' (2014) 8 The Journal of Gambling Business and Economics 1, 1.

[188] Ibid, 1-2.

revenues and bankruptcies.[189] The existence of gambling-related risks in several different fields, which may not necessarily have a direct effect on a gambler's personal spheres, allows for the possibility of various conceptualizations of gambling-related harms. However, an in-depth explanation of gambling-related harms in general is beyond the scope of this research. As stated above, the concept of problem gambling as a harm that predominantly endangers the private sphere of gamblers is the focus of this research.

3.2 Problem gambling – one and all notions

The literature is full of different terminology regarding problem gambling. Therefore, a precise delineation of the term is quite difficult to capture and remains controversial. Problem gambling is not a clearly defined term and is often used interchangeably with terms such as pathological gambling, gambling disorder, gambling addiction, compulsive gambling, excessive gambling, risky gambling and problematic gambling. On the one hand, these terms are not all necessarily synonyms. On the other, some of these terms do have the same (or similar) meanings.[190] In addition, different contexts create discrepancies for when it comes to understanding problem gambling. Discussing problem gambling and pathological gambling from a conceptual perspective, Delfabbro points out two common usages of problem gambling – problem gambling as a less severe gambling disorder that an individual may suffer from, and as a public health concept that refers to the general harmful consequences of a gambling disorder.[191] Therefore, problem gambling indicates not only a health problem, but also a concept referring to broader negative consequences. Reviewing the contemporary notion of 'problem gambling' in the literature, Neal et al. grouped five categories in which problem gambling is defined. According to their findings, problem gambling could be clarified in the following ways:

- As a medical disorder, or more specifically a mental health disorder - It is a widely-held view that problem gambling, as a medical disorder, refers to a health problem with a certain pathology that differentiates it from other health problems. There are diagnostic criteria to identify this health problem, as well as the medical support needed and possible treatments.[192]
- As an economic problem – This context indicates the role of financial means for the indication of problem gambling. Problem gambling usually (but not necessarily) leads to financial losses that can then lead to further problems (the loss of one's job, family problems, crime etc.).
- As part of a continuum of gambling behavior – Advocates of this approach systematize all gamblers in appropriate groups, from recreational and social gamblers to those with suicidal intentions. Taking into consideration the individual's gambling behavior, a gambler is then categorized into their corresponding group of gamblers. Each group is linked to a particular pathology and certain groups are considered as problem gamblers groups.
- In terms of harm to an individual and to others – Problem gambling is observed as a factor that gives rise to adverse consequences that directly affect an individual and subsequently their surroundings (e.g. family members). Adverse consequences can affect several different aspects of life: intrapersonal, interpersonal, financial, vocational and legal. This context of problem

[189] Neal, Delfabbro and O'Neil (n 173) 6.

[190] For more about important gambling terms and their meanings see: National Research Council, *Pathological Gambling: A Critical Review* (National Academies Press 1999) 20-21.

[191] Paul Delfabbro, 'Problem and Pathological Gambling: A Conceptual Review' (2013) 7 The Journal of gambling Business and Economics 35.

[192] Neal, Delfabbro and O'Neil (n 173) 12-17.

gambling especially emphasizes the impact of individual gambling behavior on the social groups that surround a gambler.

- As a social construct – Problem gambling is seen as a factor that offends socio-cultural factors. Bearing in mind that cultural, social and moral standards are not universal categories, problem gambling should be observable in any particular community. In addition, social processes within a community (e.g. acculturation) have to be included in the observation of problem gambling.[193]

Attempting to define the concept of problem gambling, Blaszczynski and Nower notice that problem gambling is a "complex interaction of genetic, biological, psychological and environmental factors. Simple consideration of gambling as an addiction or as a compulsive or impulse control disorder is too limiting in scope."[194] Therefore, the system of classification developed by Neal et al. is useful because it refers to different adverse effects of gambling that hit the individual spheres of a gambler - from health issues to the effect gambling has on an individual's social environment. Problem gambling as a medical disorder does not necessarily exclude the occurrence of other forms of problem gambling. Moreover, problem gambling as a social construct usually emerges if there are problem gamblers with a medical disorder. It could be said that problem gambling as a medical disorder is the basis, or at least the most important factor, that influences the occurrence of other forms of problem gambling. This may explain why most studies in the domain of gambling focus on problem gambling as a medical disorder.

3.3 Problem gambling as a medical disorder

Problem gambling as a medical disorder is not explained in a harmonized manner. There is a significant number of studies in this domain, but there are no universally recognized determinants regarding problem gambling as a medical disorder. Taking into consideration the guidelines for determining the problem, one can easily identify that contemporary medicine contains a screening instrument which physicians use in order to diagnose this medical disorder. However, since the announcement of the first screening instruments, terminological problems regarding problem gambling have remained subject to scientific debate. Namely, the distinction between the terms 'pathological gambling' and 'problem gambling' is still unclear. In 1987, Lesieur and Blume announced a new instrument for the identification of pathological gamblers - the South Oaks Gambling Screen (SOGS).[195] The SOGS makes a distinction between pathological gambling and problem gambling. According to this instrument, an individual who ticks yes to 5 or more questions (out of 20 questions) could be considered a pathological gambler, whereas those gamblers with a score of 3-4 are problem gamblers.[196]

In the years after its announcement, the SOGS has been utilized as a valid and reliable screening instrument for the identification of pathological gamblers. In addition, it serves as a foundation for several other valid and reliable screening instruments that have been developed at both the national and international level. Differences in *inter alia* socio-cultural factors impose the need for screening instruments to be customizable for certain groups of people or regions. In Canada, the Problem Gambling Severity Index (PGSI)[197] and the Problem and Pathological Gambling Measure (PPGM)[198] have

[193] ibid 5-38.
[194] ibid 13.
[195] Lesieur and Blume (n175) 1184.
[196] Delfabbro, (n 191) 35, 37.
[197] Jackie Ferris and Harold Wynne, 'The Canadian Problem Gambling Index: Final Report' (Submitted to the Canadian Consortium for Gambling Research February 2001).

been developed and successfully used in the national context. The PGSI and the PPGM serve for the observation of the gambling behavior of individuals, classifying them into one of four groups. There are four categories of gamblers in both instruments - in the PGSI: non-problem gambler, at-risk gambler, moderate risk gambler and severe problem gambler; in the PPGM: recreational gambler, at-risk gambler, problem gambler and pathological gambler.[199] The key thing to point out is that the PPGM and the PGSI, as screening instruments, contribute to the distinction between pathological gambling and problem gambling. According to all the above-mentioned instruments, pathological gambling could be taken as a more severe phenomenon than problem gambling.

To give an illustration of a different contextualization of problem gambling that considers different regions and their prevalent doctrines, Neal et al. notice that the term 'problem gambling' in North America suggests a level of gambling that leads towards pathological gambling, but that is still at a lower level than pathological gambling. By contrast, problem gambling in Australia tends to entail gamblers who are experiencing problems, but who do not meet the diagnostic criteria (likewise in North America), as well as gamblers who are clinically diagnosed as pathological gamblers.[200] Therefore, it seems that the Australian perception of problem gambling as a mental health problem has a broader meaning than that of North America.

In the recent past, the term 'pathological gambling' has received a terminological rival in the form of the term 'gambling disorder'. The World Health Organization has its own diagnostic tool for epidemiology, health management and clinical purposes known as the International Classification of Diseases and Related Health Problems (ICD). The ICD-10, published in 1990[201], uses the term pathological gambling in order to delineate a "disorder consisting of frequent, repeated episodes of gambling that dominate the patient's life to the detriment of social, occupational, material, and family values and commitments."[202] On the other hand, the American Psychiatric Association is the creator of one of the oldest and most comprehensive classifications for mental disorders – the Diagnostic and Statistical Manual of Mental Disorders (DSM). The current version, DSM-5, was released in 2013 and this document utilizes the term 'gambling disorder' in order to refer to a mental health disorder provoked by gambling.[203]

Whereas the ICD-10 simply describes what pathological gambling is, the DSM-5 contains diagnostic criteria for diagnosing a gambling disorder. This source determines the diagnostic criteria as follows:

> *A. Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:*

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[198] Robert J. Williams and Rachel A. Volberg, 'Best Practices in the Population Assessment of Problem Gambling' <https://www.uleth.ca/dspace/handle/10133/1259> accessed 4 November 2017.
[199] Ibid 41.
[200] Neal, Delfabbro and O'Neil, (n 173) V.
[201] The new ICD-11 should be released in 2018. The beta version of ICD-11 categorizes gambling disorder (predominantly online) within the group of disorders that arise due to addictive behavior. For more about see <http://www.who.int/classifications/icd/revision/en/> and <https://icd.who.int/dev11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1939508018> accessed 5 January 2018.
[202] WHO, ICD-10 Version:2016, <http://apps.who.int/classifications/icd10/browse/2016/en#/F63.0>, accessed 4 November 2017.
[203] American Psychiatric Association (n 182) 588.

1. *Needs to gamble with increasing amounts of money in order to achieve the desired excitement.*
2. *Is restless or irritable when attempting to cut down or stop gambling.*
3. *Has made repeated unsuccessful efforts to control, cut back, or stop gambling.*
4. *Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).*
5. *Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).*
6. *After losing money gambling, often returns another day to get even ('chasing' one's losses).*
7. *Lies to conceal the extent of involvement with gambling.*
8. *Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.*
9. *Relies on others to provide money to relieve desperate financial situations caused by gambling.*

B. The gambling behavior is not better explained by a manic episode.[204]

Considering that the DSM-5 was announced relatively recently, there are claims that pathological gambling is an outdated term and should be replaced by the term 'gambling disorder'.[205] However, there are inconsistencies with these claims. Firstly, the ICD still uses the term 'pathological gambling'. In addition, previous editions of the DSM (DSM-3 and DSM-4) used the term 'pathological gambling' in order to describe excessive gambling as an impulse disorder. However, alongside terminological differences, the ICD-10 and DSM-5 do not share a common classification regarding gambling addiction. Whereas the ICD-10 includes pathological gambling as an impulse control disorder, the DSM-5 classifies a gambling disorder as falling within the realm of non-substance-related disorders.[206] It is worth mentioning that in the previous edition, the DSM-4 classified pathological gambling within 'Impulse-Control Disorders, Not Elsewhere Classified'.

At this stage, it would be inconvenient to claim that either the World Health Organization or the American Psychiatric Association's solutions are the only valid and correct solutions. There are obvious scientific disagreements regarding problem gambling as a mental health problem. Nevertheless, there are common elements that are identifiable amongst the scientific findings. Whereas scientists disagree about the scope of problem gambling, raising the question as to whether any form of problem gambling is a mental health disorder, there are more claims which advance that any mental health disorder that derives from gambling is, indisputably, problem gambling. And while scientific disagreements about semantics regarding the problem remain, diagnostic criteria and classifications of the mental health problem exist, with scientists agreeing that problem gambling, as a mental health disorder, refers to a specific pathology that has the characteristics of addictive behavior. Therefore, it can be conceivably claimed that one part of problem gambling refers to a specific sort of addiction. Alongside various terminological determiners - such as pathological gambling, gambling disorder or compulsive gambling – medically diagnosed problem gambling is an undisputable mental health problem provoked by excessive gambling.

[204] American Psychiatric Association (n 182), 585.
[205] Planzer (n 40) 125.
[206] American Psychiatric Association (n 182) 585.

4 Responsible gambling

Responsible gambling deserves special attention due to it being a promising approach towards preventing problem gambling. Therefore, the following part of the chapter is solely dedicated to responsible gambling. In the first section the concept of responsible gambling is outlined. Considering the Reno model[207], which is taken as a scientific conceptual base for the modern understanding of responsible gambling, the subsequent section extracts the main principles of responsible gambling. This part then concludes with a discussion of these elements.

4.1 The concept of responsible gambling

As presented in the 2nd chapter, people have gambled since time immemorial. For that reason, any prohibitive initiative in this domain has had stern opposition from libertarians. Libertarians advocate for a high level of freedom as concerns decision making and individual judgment, which are both central concepts of their philosophy. Notwithstanding the importance of libertarian ideas, limitless personal freedom in the domain of gambling is quite disputable. The final decision as to whether to gamble or not should belong to gamblers. However, a gambler's capacity to make decisions that are detached from pre-existing factors that could influence their reasoning have been a polemical topic.

Discussing the ethics of gambling, Black and Ramsay[208] address a Kantian question – 'Are our choices reasonable?' - in order to answer the question as to when it is reasonable for individuals to participate in gambling. According to them, all personal reasons to gamble could be classified into two groups: instrumental reasons, when gambling is seen as an activity necessary to pursue another goal (e.g. gambling in order to earn money and obtain wealth), and intrinsic reasons, where gambling is interpreted as an activity that is valuable per se (e.g. a pleasurable activity that is physically and psychologically relaxing).[209] Considering the various personal reasons individuals may have for gambling, Black and Ramsay observe the principles from Finnis' *Fundamentals of Ethics*[210], in order to ethically outline the concept of reasonable gambling. The first principle suggests that a person should not waste opportunities by resorting to needlessly inefficient methods. This principle calls upon the consumption of activities that enrich one's personal life. Therefore, if commercial gambling does not lead to an increase in wealth, a gambler should cease gambling. The second principle says that a person must have a harmonious set of commitments. The principle enlightens the importance of personal life and the fields within it (family relations, professional work etc.). This principle can be interpreted as a prohibitive cornerstone related to the ways in which a gambler may spend their money and time in ways that jeopardize their pre-existing commitments and responsibilities. Finally, the third principle – "Do not leave out of account or arbitrarily discount or exaggerate any particular fulfilling objective" advocates for a balanced lifestyle in which no particular activity overly preoccupies someone's life.[211]

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[207] Alex Blaszczynski, Robert Ladouceur and Howard J. Shaffer, 'A Science-Based Framework for Responsible Gambling: The Reno Model' (2004) 20 Journal of Gambling Studies 301.

[208] Rufus Black and Hayden Ramsay, 'The ethics of gambling: guidelines for players and commercial providers' (2003) 3 International Gambling Studies 199.

[209] In their article, Black and Ramsay call upon a classification of reasons for gambling announced by The Australian Productivity Commission Report into Australia's Gambling Industry. According to the Report, peoples' reasons for gambling are the following: hopes and dreams, making money, social interaction, recreation and charity.

[210] John Finnis, *The Fundamentals of Ethics* (Oxford: Clarendon Press 1983) 75.

[211] Black and Ramsay (n 208).

Black and Ramsay's observations suggest an acceptable way of gambling through an exemplar of a balance between human freedoms, responsibilities and choices that may lead to negative effects. However, their work points towards the conclusion that it is the gamblers who bear the largest portion of responsibility for their actions. The claim that the ultimate decision to gamble belongs to the individual person and represents a choice, is one of the main principles proclaimed within a pioneering scientific model of responsible gambling that is known as the Reno model.[212] Notwithstanding the criticism addressed to this principle,[213] a gambler's personal decision remains the focal point of responsible gambling.

Developing the Reno model, Blaszczynski et al. describe responsible gambling as a set of principles, policies and practices designed to prevent and mitigate potential gambling-related harms, including problem gambling.[214] It is composed of various elements that are aimed to promote consumer protection, community/consumer awareness and education about gambling-related harms, as well as access to effective treatment.[215] Thus, the concept of responsible gambling has quite a broad meaning. The essence of the contemporary understanding of responsible gambling is a set of ethical elements that shape the spheres of action of all the entities related to gambling, in order to ensure socially acceptable and desirable gambling.

The principles of responsible gambling differ from those strategies, principles and measures that are aimed at the rehabilitation of gamblers who have already suffered gambling-related problems. The main goal of the principles of responsible gambling is to reduce the incidence and prevalence of gambling-related harms at several levels (individual, group and societal) through the prevention and mitigation of gambling related harms.[216] Responsible gambling is, therefore, a proactive approach aimed at preventing problems.

Outlining the concept, Blaszczynski et al. propose a tripartite model of responsible gambling that includes responsibilities for the three main stakeholders in this domain (government, industry and the gamblers themselves) towards the minimization of gambling related harms.[217] Thus, it refers to policies and practices that, through their practical implementation, tend to increase the level of consumer protection, and the prevention and mitigation of gambling related harms.[218] Hence, for the purpose of this study, responsible gambling is defined as a broad concept that includes a set of ethical standards, policies, legal acts, research and other actions taken by the main stakeholders in the gambling domain, that are aimed towards the prevention and mitigation of gambling-related harms.

[212] Blaszczynski, Ladouceur and Shaffer, (n 207) 311.
[213] Gerda Reith expresses her criticism towards this principle, claiming that it is a reflection of neoliberal ideas about responsibility that derives from the neoliberal concept of the minimal state, the reduced role of external governance and the exaggerated importance of individual self-control. More about at: Gerda Reith, 'Reflections on Responsibility' (2008) 22 Journal of Gambling Issues 149.
[214] Blaszczynski, Ladouceur and Shaffer (n 207) 308.
[215] Ibid.
[216] Ibid.
[217] Alex Blaszczynski and others 'Responsible Gambling: General Principles and Minimal Requirements' (2011) 27 Journal of Gambling Studies 565, 566.
[218] Ibid 567.

4.2 Principles of responsible gambling

The principles of responsible gambling are not identical to the Reno model. There are various scientific proposals and opinions about responsible gambling. Nevertheless, for the purpose of this study, the extracted principles for responsible gambling are based on the Reno model, but strengthened by additional scientific findings and relevant discussions. There are four principles of responsible gambling:

- Key stakeholders need to work together.
- Responsible gambling standards, policies, legal acts and measures should, as much as possible, be based on scientific and empirical evidence (evidence-based approach).
- Informed gamblers should decide whether to gamble or not (gamblers' informed choice).
- Unjustified intervention is not likely to promote responsible gambling.

Due to the fact that the realization of the first and second principle are considerably intertwined in practice, these principles are presented in one subsection. After that, the two other principles are presented.

4.2.1 Key stakeholders need to work together and adopt an evidence-based approach

Before we present the reasons why key stakeholders have to work together, we should determine who these key stakeholders are. Blaszczynski et al. identify government, industry and gamblers as the main stakeholders.[219] According to the opinion of this study's author, these three subjects are certainly the main stakeholders, but they must be accompanied by academia. Cooperation with representatives from the sciences is of great importance for realizing the evidence-based approach that will be discussed further in the text.

Each of the key stakeholders for implementing the responsible gambling principle has information, experience and knowledge that may contribute to the effective and efficient development and implementation of responsible gambling. For instance, organizations that provide professional assistance to problem gamblers have extremely valuable information on gamblers' experience, and more precisely on the problems that gamblers have and how to overcome them. Medical science can explain such problems from the scientific perspective. Online gambling service providers can collect and process information on gambler behavior and thus complement the knowledge that science and gamblers themselves do not have or cannot obtain. Finally, the government as a stakeholder forms the policies and legislation relevant for the field of gambling.

In a defined socio-political and regulatory framework, the gambling regulation must be developed. The role of the government should not be exclusively seen as one that is superior to other stakeholders. Of course, the government creates a regulatory framework that must be respected. Nevertheless, in the process of creating laws and policies, the attitudes, opinions, findings and analyses of other stakeholders should be respected. Such an approach is welcome in order to avoid the creation of policies and laws whose implementation would be problematic. In order to illustrate this problem, we can take into account the following example – Gambling laws could impose obligations on service providers to process large-scale amounts of online gamblers' personal data for the purpose of recognizing problem gamblers with a medical disorder. However, certain problems regarding the implementation of such an obligation arise if scientific methods have not yet been developed for such an approach in respect to the

[219] Ibid 566.

detection of problem gamblers. For instance, professionals in the field of data science can indicate a stream of technical obstacles which occur, or may occur, when online gamblers' personal data is processed. Therefore, an isolated legislative initiative by the government without cooperation from other stakeholders can create laws that are impossible to implement (or hardly possible) in practice. On the other hand, cooperation between stakeholders can result in a legislative solution whose implementation is feasible (e.g. gambling service providers ought to only process gamblers' data to recognize gamblers at risk, not medically diagnosed problem gamblers).

The responsible gambling approach might be pursued without the cooperation of stakeholders, but for the permanent evaluation of its effectiveness and to work on its improvement, cooperation among key stakeholders is beneficial and, in a certain sense, even necessary.[220] In this respect, science plays an important role. Science is used to indicate problems in the gambling domain, to plausibly prove certain hypotheses or even refute some scientific claims. New knowledge could be addressed to the corporate sector, which in turn could change business practices and improve the system of responsible gambling. Thus, Sztainert et al. consider that knowledge should not only be exchanged, but also 'translated' for the purpose of gambling research.[221] The presentation and exchange of knowledge should be carried out in an understandable manner, so to make scientific findings usable. In this way, scientific findings can influence current legislation and measures whose implementation has not fulfilled previous expectations. And so, we arrive at the point when cooperation among stakeholders might be tightly linked with the second principle of the Reno model – an evidence-based approach.

The observation of scientific findings is crucially important for the implementation of an evidence-based approach. Scientific findings, particularly empirical evidence concerning the prevention of gambling-related problems, may be used as building blocks for gambling-related policies. However, via this process, empirical evidence has to interlace with more general socio-political goals. Furthermore, taking into account how gambling-related matters concern psychology, sociology, marketing, business, law, criminology, finances, public policy and ethics, the intertwining of findings from various scientific disciplines seems necessary for the development of responsible gambling. It can therefore be assumed that scientific evidence-based results with interdisciplinary features should steer the design of responsible gambling. However, usable evidence for the improvement of responsible gambling does not have to derive solely from science. It should not be neglected that gamblers and the industry may provide non-scientific, but nevertheless valuable evidence for the development of responsible gambling as well. Therefore, it might be said that cooperation amongst the main stakeholders, as the first principle of responsible gambling, generates (to a great extent) the second one – the evidence-based approach.

Notwithstanding the possibility that government, industry and science may create an effective and efficient system for the prevention of problem gambling, it is the gamblers that ultimately decide whether to gamble or not. Their decision to gamble exposes them to gambling-related risks. In that light, informing gamblers about the adverse aspects of gambling activities before they start to gamble is

[220] Alex Blaszczynski, Robert Ladouceur and Howard Shaffer 'New Horizons in 2014: The Reno Model: 10 Years Later' <https://www.youtube.com/watch?v=mjJEGx66_rA&feature=em-share_video_user> accessed 4 November 2017.

[221] Process of knowledge translation is observed in: Travis Sztainert, Hyoun Andrew Kim and Michael Wohl, 'Knowledge Translation and Exchange in Gambling Research: A Beginners Guide' (2014) 1 Responsible Gambling Review 64.

considered an important measure for the prevention of problem gambling. For that reason, the second principle of responsible gambling is known as gamblers' informed choice.

4.2.2 The gambler's informed choice

Gamblers decide whether to gamble or not and how much time and money they spend on gambling. Thus, personal responsibility and personal choice in gambling-related decision-making are essential principles of responsible gambling. Aside from the fact that the ultimate decision to gamble resides in the individual and represents a choice, the Reno model states that for proper decision-making, individuals must have the opportunity to be informed.[222] For that reason, a gambler's informed choice is a 'pivotal requirement' for responsible gambling.[223] Gamblers should be able to make a reasoned decision based on their understanding of the necessary information.[224] Nevertheless, there is no benchmark for a reasoned decision that results in optimal protection. Blaszczynski et al. stand for optimal protection that could be achieved only if a gambler is fully informed. This is a necessary element for making an informed choice and for that reason, the information should be relevant, available and timely.[225]

Certain similarities between the gamblers' informed choice and the informed consent of data subjects are evident. A legal analysis, which also includes an analysis of the data subject's consent is given in Chapter VIII of this thesis.[226] Now, if we make a review of the concept of a data subject's informed consent, we can notice certain controversies related to the principle of gamblers' informed choice. In her study of the data subject's consent[227], with reference to Brownsword`s work[228], Kosta notices that the condition for meeting the standard of informed consent not only depends on the quantity of data that is presented to the data subject but also on the quality of information delivered to the data subject. Therefore, Kosta considers that in the process of informing themselves, the data subject's "greatest difficulty lies in defining in each specific situation what information is significant and what not".[229] The non-existence of a unique criterion for determining the quality and volume of information is not surprising. Different cases of data processing demand a contextual approach for determining the conditions for meeting the standard of a data subject's informed consent. If we consider the context of online gambling, problems appear both due to the existence of a large number of data processing purposes in relation to gambling operations, and the ability of players to comprehend the consequences of data processing.[230] Therefore, the following question can be raised: Is it possible to inform a gambler on the aspects of gambling in a manner that would help limit future gambling activities within the limits of moderate gambling? If so, how? It has to be stressed that the Reno model was proposed in 2004 when online gambling was just a symbolic part of the entire gambling industry. Today, a fully informed online gambler is a disputable concept. Presenting an individual with all the possible information in order to make them fully informed as concerns the online environment creates the risk of presenting a

[222] Blaszczynski, Ladouceur and Shaffer (n 207) 311-12.
[223] Alex Blaszczynski and others, 'Informed Choice and Gambling: Principles for Consumer Protection' (2008) 2 The Journal of Gambling Business and Economics 103, 105-06.
[224] Ibid 107.
[225] Ibid 105.
[226] See Chapter VIII, subsection 3.4.
[227] Eleni Kosta, *Consent in European Data Protection Law* (Martinus Nijhoff Publishers 2013).
[228] Roger Brownsword, *Rights, regulation and the technological evolution* (Oxford University Press 2008) 96.
[229] Kosta (n 227) 210.
[230] These problems are elaborated in the legal analysis in the 8th chapter.

very broad scope of information that cannot be easily utilized (because of its size) nor understood (because of its complexity). It seems that the presentation of relevant information does not coincide with the presentation of all possible information. Having access to all possible information is desirable, but the presentation of information in order to make a gambler fully informed about gambling-related harms remains questionable due to distinctive personal characteristics of every gambler and their gambling behaviors.

Blaszczynski et al. form the principle of gamblers' informed choice in an abstract manner. In fact, they do not determine how to inform gamblers. They just explain the goal of informing gamblers. Informing a gambler on the different aspects of gambling activities for the purposes of advocating a moderate type of gambling, can be conducted in a number of different ways. Public campaigns on the negative effects of gambling are one of the primary ways of informing gamblers. A campaign may be carried out among a specific population (e.g. students or workers from poor suburbs). In addition, the ways of carrying out a campaign (e.g. holding public debates, leaflet distribution, programs broadcasted via the media) influence the selection and presentation of information. Apart from public campaigns, online gamblers can be warned either through the web pages of online gambling service providers or through the web pages of specialized organizations that provide assistance to gamblers. Whilst gambling, gamblers can be warned of the potentially adverse effects of their gambling, especially when there is an indication of possible problematic forms of gambling (e.g. an unusual length of a gambling sessions or a high frequency of gambling in the observed period). Finally, gamblers can be informed on their gambling behavior and be given the opportunity of carrying out a self-assessment test that gives them personalized feedback. Therefore, we can conclude that the process of informing a gambler is carried out both generally and individually. As concerns the temporal aspect, the process of informing individuals can happen long before an individual engages in any gambling activities, immediately before or even during gambling, or after gambling (e.g. by means of behavioral analytic tools that recognize risky ways of gambling and subsequently warn gamblers). If there is an indication of problem gambling, then it can be considered justified to intervene.

4.2.3 Unjustified intervention is not likely to promote responsible gambling

Suggestive, controlling and imperative measures could shape gamblers' decisions and gambling behavior. However, the freedom of gamblers has to be respected. Unjustified interferences into a gambler's behavior not only disrespect their freedom, but may also provoke unintended consequences.[231] Nevertheless, it is unclear where and when such limitations to a gambler's freedom would be justified. It is well known that people who lose control over their behavior due to a mental disorder are restricted in terms of their freedom.[232] In most European legislation, a person who is considered a pathological gambler could be declared a person without full legal capacity. In such cases guardianship should be imposed.[233] In other words, legislation may restrict the rights and freedoms of problem gamblers with medical disorders for the purpose of preventing the further deterioration of their condition. However, as it was stated, the essence of the responsible gambling approach lies in its preventive orientation, and not in treating the gamblers whose condition is a health problem. Therefore,

[231] Juliet Williams, Australian Gaming Council, 'The Reno Model: From the Theory to Practice' (Presentation at 6th European Conference on Gambling Studies and Policy Issues, Malmo, June 2005).
[232] Black and Ramsay (n 208) 210.
[233] Dusan Pavlovic, 'Online gambling, addiction and lawful consent' (10th European Conference on Gambling Studies and Policy Issues, EASG, Helsinki, September 2014).

a question arises as to whether interferences are justified for non-medically diagnosed at-risk gamblers, and if so, when?

According to this study's author, gamblers cannot be sharply divided into those who have health issues (problem gamblers with a medical disorder) and those who do not (moderate gamblers). Between these two groups of gamblers are those gamblers whose gambling behavior contains elements of risky gambling, and who cannot, therefore, be considered moderate gamblers. However, such gamblers are not necessarily problem gamblers with a medical disorder, because there is no sufficiently developed diagnostic tool which can indisputably indicate the existence of this type of health disorder. It seems that transitional gamblers are the target group of those entities who take measures in the domain of responsible gambling. Yet, prevention is also helpful for seeking to ensure that moderate gamblers do not become risky gamblers. Therefore, responsible gambling measures are welcome in respect to every type of gambler, where preventive actions may help reduce the chances of an escalation in risky gambling behavior. For that reason, the responsible gambling approach has to contain a broad scope of appropriate measures. Each measure should be carefully selected in order to enable its purposeful application. Such an approach is relevant not only for achieving the best expected result for the prevention of problem gambling, but to also avoid the implementation of responsible gambling being considered an unjustified form of intrusion.

4.3 Discussion on responsible gambling

As the subject of various ethical discussions, gambling has often been declared a non-desirable activity and provocateur of numerous harms. Given the diverse harms outlined in the first part of this chapter, it seems that this conventional assertion is not incorrect. However, the notion of responsible gambling refers to a combination of a potentially harmful activity (gambling) and a concept with acceptable, desirable and sustainable outcomes (responsibility). Thus, responsible gambling is supposed to be the yin and yang, seeking to help gamblers pursue a balanced lifestyle without the occurrence of gambling-related harms.

The concepts of responsible gambling and the Reno model proposed by Blaszczynski and others are still evolving. However, there are limitations that have hindered the development of both. Firstly, the general concept of responsibility is chameleon-like. Responsibility is often interchangeably utilized alongside similar concepts. Distinctions among concepts such as liability, accountability, ethics and responsibility have raised academic discussions that have led to various conceptualizations and subsequent reconceptualization.[234] Secondly, a lack of conceptual clarity and consensus regarding the parameters of responsible gambling has challenged a common understanding of the concept. The creators of the Reno model noticed that, terminological inconsistencies about the related notions (e.g. problem gambling), differences amongst stakeholders' views on the concept of responsible gambling and their roles in the realization of this concept in practice, the lack of unified criteria regarding gambling-related harms, and a lack of research, are just a few of the factors that influence the

[234] More about the concept and structure of responsibility and its differentiation from similar concepts at: Richard Mulgan, '"Accountability": An Ever-Expanding Concept?' (2000) 78 Public Administration 555; Jonathan GS Koppell, 'Pathologies of Accountability: ICANN and the Challenge of "Multiple Accountabilities Disorder"' (2005) 65 Public Administration Review 94; Bert-Jaap Koops, 'The Concepts, Approaches, and Applications of Responsible Innovation, in Bert-Jaap Koops and others (eds), *Responsible Innovation 2: Concepts, Approaches, and Applications* (Springer International 2015).

development, conceptualization and realization of responsible gambling.[235] Nevertheless, the principles of the contemporary notion of responsible gambling, as well as their roles in the prevention and mitigation of gambling-related harms, are discernable.

Certain challenges and opportunities regarding the further development of responsible gambling can be identified through a comparative analysis between the concepts of responsible innovation and responsible gambling. The common grounds for both concepts can be found in science: Innovations are scientific products, whereas the contemporary designs of responsible gambling are supposed to be based on scientific findings. Scientific research, as a predecessor of innovation, is not immune to responsibility. Davis and Horst describe the relationship between responsible research and innovation as "a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (…)."[236]

In his work, Koops notes that authors have several different opinions regarding what responsible innovation is. It has been described as a 'concept', a 'notion', a 'discourse', an 'approach', an 'ideal', an 'aspiration', a 'new field of study', an 'emerging discipline', a 'trend in a scholarship', a 'policy' or a 'hype'. He sums up responsible innovation as a combination of two things. "It is, first, an ideal: something we strive for even though we realize it can never be fully attained. Second, it is also a project, a joint enterprise of an increasingly large community of people who want to bring us closer to this ideal."[237] Enumerated characteristics of responsible innovation can be applied in the conceptualization of responsible gambling. Obviously, it is a concept whose notion depends on certain ethical discourses. Gambling ethics are not universal and rely on a particular national approach regarding a sort of gambling.[238] Responsible gambling is not just an ethical concept, but a strategy that is supposed to be envisaged alongside practical measures whose implementation strives for an ideal: Gambling without gambling-related harms. In addition, responsible gambling includes the work of an incremental number of people from different communities whose different interests are directed toward a common goal.

Notwithstanding the numerous ways of dealing with responsible innovation, Koops discerns two main approaches, a product approach and a process approach. The product "approach can be characterized by a focus on developing a method, a framework, or guidelines that can be used to make innovation in a certain context more responsible", whereas "the process approach can be characterized as a focus on developing self-learning procedures that can be used to make innovation in a certain context more responsible."[239] These approaches might suggest indications for the development of responsible gambling. The instruments of responsible gambling should be of a specific quality, and supported by scientific evidence. A reasonable amount of scientific findings has demonstrated that vulnerable groups

[235] Blaszczynski, Ladouceur and Shaffer (n 207) 305-07.

[236] Sarah R. Davis and Maja Horst, 'Responsible Innovation in the US, UK and Denmark: Governance Landscapes' in Bert-Jaap Koops and others (eds), *Responsible Innovation 2: Concepts, Approaches, and Applications* (Springer International 2015) 47.

[237] Bert-Jaap Koops, 'The Concepts, Approaches, and Applications of Responsible Innovation, in Bert-Jaap Koops and others (eds), *Responsible Innovation 2: Concepts, Approaches, and Applications* (Springer International 2015) 5.

[238] Gambling ethics differ among national Member States in EU. Similarly, Davis and Horst outline the differences between the ethical standards regarding Responsible Innovation in USA, UK and Denmark. For more about see: Sarah R. Davis and Maja Horst (n 236) 37-56.

[239] Koops (n 237) 6-7.

of gamblers are more prone to becoming addicts.[240] Therefore, a deontological ethical rule in the gambling domain would impose complete intolerance towards underage gambling. This is an example of a specific commitment embedded in all responsible gambling policies and strategies. However, the efficacy and effectiveness in the prevention of underage gambling depends on the particular process designed for this purpose. During the application of age-verification schemes, drawbacks and problems, as well as new scientific findings, indicate room for improvement of the process. These improvements, that contribute to the development of the specific processes at hand, may then contribute to the development of the overall system of responsible gambling. Thus, responsible gambling could adopt elements from the process approach to responsible innovation in order to stimulate reflexivity and self-learning.

Responsible gambling should strive for the permanent improvement of gambler protection. It is desirable that any policy, strategy and practice designed to prevent and mitigate gambling-related harms be evidenced-based. Thus, the implementation process of any responsible gambling initiative has to be evaluated and improved where possible. This should be a never-ending process due to at least two reasons. Firstly, because the idealistic aspiration in 'gambling without gambling-related harms' requires permanent work to improve gambler protection. Secondly, because the progressive development of the gambling industry creates novel situational and structural elements of gambling.[241] Such novelty presents novel challenges to the protection of gamblers and for that reason, the responsible gambling approach has to be under permanent maintenance and development. By doing so, the protection of gamblers will be constantly upgraded and possibly enhanced.

5 Conclusion

This chapter discussed the fundamental features of gambling-related harms and problem gambling, as well as the concept of responsible gambling. The specificities of gambling services, primarily depicted via the potential harms that they can cause, call for the specific regulation of gambling matters. The protection of gamblers requires a multi-level approach that includes the activities of key stakeholders in the gambling domain. For that purpose, responsible gambling is seen as a multifold concept that encompasses a broad spectrum of activities in favor of gambler protection. Essentially, it is a set of ethical standards whose principles can be transformed into concrete regulations and measures. The Reno model offers four principles as milestones for principles, policies and measures that should preserve moderate type of gambling.

A proper balance between personal freedom and individual choice regarding gambling on the one hand, and the needs to prevent and mitigate gambling-related harms on the other, represents the equilibrium that responsible gambling should aim to achieve. Responsible gambling is supposed to be a guardian of both the personal and social spheres, shielding individuals and society from gambling-related harms and problem gambling. However, responsible gambling is not a universal antidote to the risks and harms that may derive from gambling. Gambling-related risks do not have the same effects in all particular cases. Also, gambling-related harms and problem gambling manifest themselves in various ways. In addition, any gambling behavior depends on the personal characteristics of the individual in question, which, in combination with environmental factors, create said gambling behaviors, including problem gambling. Moreover, there is still some lack of clarity as to what gambling-related risks, harms and

[240] See Chapter V, subsection 3.1.1.

[241] For more about situational and structural elements see Chapter IV, section 2.

problem gambling are. Therefore, what is considered responsible gambling is not set in stone. It is rather a fluid entity, the contours of which are discernable, but whose content is, to a considerable extent, context-dependent. In the future, the concept of responsible gambling may have a clearer shape. However, we should not expect that its structure will achieve some final and unchangeable setting. It is reasonable to expect that developments in the online gambling industry will bring novelties regarding structural and situational gambling factors. These novelties will probably affect gambling consumption and gambling behaviors, and impose certain needs for evaluating already existing measures, upholding efficient ones, and creating additional measures for fighting against gambling-related risks.

Chapter IV: Gambling advertising and the processing of gamblers' data

1 Introduction

Advertising is a well-known way of promoting goods and services. Its ultimate goal is to increase the consumption of the advertised goods/services and to generate business. In the digital environment, commercial communication is based on data processing. In general, it might be claimed that having more data, particularly data regarding the behavior and preferences of consumers, creates better opportunities for effective commercial communication. The processing of data for commercial communication is an intrinsic part of providing online gambling services. Online gambling service providers have legitimate business interests for using gambling-related advertising to attract more gamblers or to increase the amount existing customers/gamblers gamble. However, uncontrolled levels of gambling might be considered to lead to (or to signal) problem gambling. Therefore, this chapter sheds light on the relationship between the processing of online gamblers' data and the provocation of the problem gambling. To this end, the chapter places particular focus on gambling-related advertising, in order to explore whether it can be considered to provoke problem gambling.

Online gambling service providers process the personal data of online gamblers for many purposes other than commercial communication. Processing gamblers' data for identification purposes is crucial for the regular provision of services and implementation of a responsible gambling approach (more about this in Chapter V). However, processing the data of online gamblers for commercial communication purposes can lead to a provocation of problem gambling. Therefore, data processing has two sides, both of which deserve particular attention and to be analyzed.

The first part of the chapter explains why gambling advertising should be considered to lead to a gambling-related risk. The hypothesis is that online gambling advertising incites problem gambling. This hypothesis is underpinned by empirical findings about the adverse effects of gambling advertising.

The second part of the chapter describes behavioral advertising. Particular attention is given to the profiling of gamblers as an essential technique for behavioral advertising. Besides this, behavioral advertising and profiling are of central interest to the chapter's second part for several other reasons. Firstly, because of the spreading of behavioral advertising in the online environment and online gambling business. Secondly, because behavioral advertising can utilize opportunities from the online environment in order to create various channels that address personalized advertising appeals.[242] Finally, the essence of online profiling used for online gambling behavioral advertising is the processing of gamblers' personal data.

Besides highlighting the importance of profiling in the current online gambling context, an additional goal for the second part of the chapter is to answer where advertisers get their data, on which gamblers' profiles are based on, from. An analysis of the privacy policies of online gambling service providers

[242] Advertising appeal is the central theme or idea of an advertising message. See: Sharon Shavitt and Jing Zhang, 'Advertising and Culture' in Charles Spielberger (ed), *Encyclopedia of Applied Psychology* (Volume 1, Elsevier Inc. 2004), 47.

provides us with an insight into contemporary online gambling business practices regarding the profiling of gamblers and the use of gambler profiles for advertising purposes. The chapter ends with a synthesis, in which the author presents his opinions on gambling advertising as something that provokes problem gambling, as well as on behavioral advertising and profiling as contributors to successful advertising.

2 The impact of gambling advertising on problem gambling

Marketing and advertising are business fundamentals in respect to influencing consumer perception and decision making regarding certain goods or services. Notwithstanding the presence of numerous definitions of advertising, one of the most complete definitions describes advertising as "a paid, mediated form of communication from an identifiable source, designed to persuade the receiver to take some action, now or in the future".[243] It might be said that advertising is an essential component of the experience economy, which combines psychological aspects with cultural patterns in order to create an effective advertising appeal and, consequently, a desirable business outcome.[244] The purpose of advertising was recognized by Zarsky as threefold: to cross the consumers' barriers of perception; to capture consumers' attention; and to affect their comprehension. In order to achieve these goals, important roles are given to knowledge and experience.[245] In line with Zarsky's opinion, it might be said that gambling advertising tends to influence gamblers' knowledge and emotions in order to persuade them to start or to continue gambling.

The growth of the gambling business in the last decade has not only led to a higher number of service providers, players and incremental incomes, but also to the progressive development of advertising activities. Gambling advertising is considered an influential factor that is particular important in shaping gambling behavior. Dividing all of the elements that influence gambling behavior into either structural or situational elements, Griffiths et al. emphasize gambling advertising as the most important situational element.[246] Situational elements influence the accessibility and availability of gambling, while in contrast, structural elements influence a gambler's motivation to reinforce the gambling activity or satisfy certain needs.[247] The role gambling advertising has in terms of provoking problem gambling is also explained by Blaszczynski and Nower. Their 'pathways model' of problem and pathological gambling[248] outlines the overall process regarding the occurrence of problem gambling and meaningfully integrates environmental (ecological), biological and psychological factors into a unique structure. According to this model, the first node in the provocation of gambling addiction concerns the ecological factors associated with gambling. Ecological factors influence the development of subsequent phases on

[243] Jef Richards and Catharine Curran, 'Oracles on "advertising": Searching for a definition' (2002) 31 Journal of Advertising 63, 74.

[244] For more about see: B. Jospeh Pine II and James H. Gilmore, 'Welcome to Experience Economy' (1998) 76 Harvard Business Review 97; Patrick T. Vargas and Sukki Yoon, 'Advertising Psychology' in Charles Spielberger (ed), *Encyclopedia of Applied Psychology* (Volume 1, Elsevier Inc. 2004), 53-64; Sharon Shavitt and Jing Zhang, 'Advertising and Culture' in Charles Spielberger (ed), *Encyclopedia of Applied Psychology* (Volume 1, Elsevier Inc. 2004), 47-51.

[245] Tal Zarsky, 'Online Privacy, Tailoring, and Persuasion' in Katherine Strandburg and Daniela Stan Raicu (eds), *Privacy and Technologies of Identity*. (Springer 2006), 8-9.

[246] Mark Griffiths, Tobias Hayer and Gerhard Mayer, 'Problem Gambling: European Perspective' in Gerhard Mayer, Tobias Hayer and Mark Griffiths (eds), *Problem Gambling in Europe: Challenges, Perspective and Prevention* (Springer 2009), XXI.

[247] Ibid.

[248] Blaszczynski and Nower (n174).

the pathway that leads toward the development of health problems. Ecological factors refer to policies, regulations and social factors that create an environment for the promotion and accessibility of gambling. Obviously, gambling advertising is used for promotion and accessibility, and is therefore considered as an important ecological factor. In line with Blaszczynski and Nower's model, Shaffer et al.[249] suggest a broad range of factors that influence gambling behavior. They contend that gambling behavior depends on individual and environmental factors. Factors such as skills, erroneous perceptions, vulnerable personalities, mental illness, and neurobiological defects, are considered as individual internal factors that shape particular gambling behavior. All other elements that contribute to gambling behavior, including advertising, are external or societal factors. Shaffer et al. claim that the presence of so called 'environmental toxins' increases the likelihood of the occurrence of gambling-related problems.[250]

2.1 The impact of gambling advertising

Empirically validated studies contribute to the explanation of the relation between gambling advertising and the provocation of problem gambling. These studies analyze the impact of gambling advertising and clarify the possible relations between gambling advertising and factors that provoke problem gambling. However, the findings should be taken with caution, due to certain scientific limitations.

2.1.1 Limitations when measuring the impact of gambling advertising

Before seeking to explain how gambling advertising influences gambling behavior, certain scientific limitations to empirical studies on the impact of gambling have to be underlined. First of all, it must be stressed that there is a paucity of research regarding the influence advertising has on gambling. There is insufficient empirically validated evidence on how gambling advertising influences gambling behavior, or provokes gambling-related harms, and as to how advertising regulations influence the minimization of gambling-related harms.[251]

The following problem refers to the diversity of markets and marketing goals that are observed in scientific research. Marketing activities often generate different results in different markets. Thus, gambling advertising has a different impact on mature markets than it does on immature ones.[252] In addition, marketing goals may serve various purposes (e.g. to expand the customer base, to retain old gamblers, to consolidate the position of a company on a market, or to increase sales). What more, cultural differences among nations make the standardization of advertising and marketing strategies difficult.[253] Thus, the impact of gambling advertising not only depends on a particular advertising strategy and consumers' attitudes toward the acceptance of an advertising appeal, but also on other various cultural features that are specific to the observed market.

Regarding methodological problems, it has to be stressed that most studies that address the impact of gambling advertising on gambling behavior are based on qualitative research. The studies are mainly

[249] Howard J. Shaffer, Richard A. LaBrie and Debi LaPlante, 'Laying the Foundation for Quantifying Regional Exposure to Social Phenomena: Considering the Case of Legalized Gambling as a Public Health Toxin' (2004) 18 Psychology of Addictive Behaviors 40, 41-42.
[250] Ibid.
[251] Adrian Parke and others, 'Responsible Marketing and Advertising in Gambling: A Critical Review' (2004) 8 The Journal of Gambling Business and Economics 21, 21.
[252] Ibid 24.
[253] Shavitt and Zhang (n 242) 48.

conducted by interviewing gamblers. Therefore, self-assessments made by gamblers are a prevalent factor in obtaining results. In this respect, the validation of the results could be disputable, due to the possibility of an over/underestimation, by the gambler, of the factors that influence gambling behavior. The majority of studies conclude that those gamblers who see more adverts are more easily persuaded to gamble. However, the gamblers who gamble the most are more likely to see the adverts.[254] In addition, there is a concern that more frequent gamblers could overestimate the power of advertising as a gambling trigger, whereas less frequent gamblers could underestimate it. In addition, a pure connection between advertising and gambling-related harms based on a single distribution theory[255] is contested. The development of gambling behavior depends on a variety of elements. The correlation between problem gambling and an isolated environmental factor such as advertising could exclude the influence of other aggravating elements. Therefore, Binde states that "it is very difficult, if not impossible, to assess how many people gamble excessively because of a direct or indirect influence of advertising."[256]

Finally, the online environment presents additional problems for observing the impact of gambling advertising. National and international regulatory bodies can follow the frequency and ways of traditional gambling advertising (e.g. TV advertising, billboards). However, it is very difficult to build an accurate 'landscape' of commercial communication within the online environment. Hence, reliable data about the scope, frequency and content of online gambling advertising is relatively unattainable.

2.1.2 Findings

Despite the limitations mentioned above, findings from the few empirically validated studies that do exist, do give strong support to the claim that certain gamblers are triggered by gambling advertising and that this influences gambling behavior, including the provocation of pathological gambling. In the empirical research conducted by Grant and Won regarding the demographic and clinical features of adult pathological gamblers, it was reported that gamblers triggered by advertising probably developed pathological gambling behaviors soon after the onset. They explain this tendency by pointing to the fact that constant exposure to gambling triggers the urge to gamble. As a consequence, gamblers quickly engage in pathological gambling.[257] However, gambling advertising does not have the same impact on everyone who forms part of the overall gambling population. Certain groups of gamblers are especially affected by gambling advertising and gamble even more than usual when triggered.[258] Binde's study, conducted by interviewing 25 gamblers, demonstrated that 5 of the 25 gamblers were under the non-negligible influence of gambling advertising. These gamblers identified advertising as being a powerful

[254] Simon Planzer and Heather Wardle, 'The Comparative Effectiveness of Regulatory Approaches and the Impact of Advertising on Propensity for Problem Gambling' (Responsible Gambling Fund, London 2011) <https://ssrn.com/abstract=2045052>, 51.

[255] This theory associates the rise of certain trends with other particular changes in society. The application of the theory might be found in the work of Grun and McKeigue. They proved that a higher prevalence of excessive gambling in the UK was the consequence of the introduction of the national lottery. For more about this research see: Lucia Grun, Paul McKeigue, 'Prevalence of excessive gambling before and after introduction of a national lottery in the United Kingdom: another example of the single distribution theory' (2000) 95 Addiction 959.

[256] Per Binde, 'Gambling advertising: A critical research review' (The Responsible Gambling Trust, London 2014), 1.

[257] Jon E. Grant and Suck Won Kim, 'Demographic and clinical features of 131 adult pathological gamblers' (2001) 62 Journal of Clinical Psychiatry 957.

[258] Per Binde, 'Exploring the Impact of Gambling Advertising: An Interview Study of Problem Gamblers' (2009) 7 International Journal of Mental Health and Addiction 541.

gambling trigger that is difficult to cope with. Gambling advertising hindered them in respect to cutting down on their gambling activities and the funds they would spend on gambling.[259]

Besides certain temptations that affected a gambler's ability to control their gambling behavior, scientific studies reported a misperception amongst gamblers concerning gambling-related harms. Investigating gambling behavior among 194 adult gamblers in the U.S., Youn et al.[260] demonstrated that gamblers are aware of the influence of gambling advertising on gambling behavior. However, according to their results, gamblers consider advertising to be a factor which impacts others more than it does themselves.[261] A particularly high level of misperception about gambling was indicated among young people. Derevensky et al. found that gambling advertising has a particularly strong influence on adolescents. Among this group of consumers, advertising is very effective at attracting new gamblers as well as maintaining levels of already created gambling behavior.[262] Their study declares that young people consider gambling to be a "socially acceptable form of entertainment and recreation".[263]

In one of the rare studies on the influence gambling advertising has on online gambling behavior, Hing et al. argue that advertising contributes to an increase in online gambling.[264] The study reveals how marketing activities regarding the provision of online gambling services influence the gambling behavior of different types of gamblers, including gamblers undertaking medical treatment. It was concluded that the role of advertising of online gambling in attracting new users is limited.[265] However, advertising and the promotion of online gambling increase levels of gambling among the current population of gamblers, especially among online gamblers and gamblers who have been treated for addiction. Advertising tempts gamblers who try to leave or limit the scope of gambling, undermining their resolutions to limit their gambling.[266] In addition, the study's findings confirmed that so-called lapsed gamblers[267] are also tempted to gamble again after seeing promotions or advertising of online gambling. Finally, the largest population of the research sample agreed that promotion and advertising lead to longer gambling sessions and an increase in the amount of time spent on gambling.[268]

It appears that gamblers have a stronger association with gambling advertising than non-gamblers and those gamblers that gamble very rarely. This fact is confirmed by Amey's study.[269] In addition, Derevensky et al. stress that problem gamblers are more attentive to gambling advertisements.

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[259] Ibid 546-49.

[260] Seounmi Youn, Ronald J. Faber and Dhavan V. Shah, 'Restricting gambling and the third-person effect'(2000) 17 Psychology and Marketing 633.

[261] Mark D. Griffiths, 'Does Gambling Advertising Contribute to Problem Gambling?' (2005) 3 International Journal of Mental Health & Addiction 15, 18.

[262] Jeffery Derevensky and others, 'An Empirical Study Examining the Impact of Gambling Advertisements on Adolescent Gambling Attitudes and Behaviors' (2010) 8 International Journal of Mental Health and Addiction 21.

[263] Ibid 25.

[264] Nerilee Hing and others, 'Do advertising and promotions for online gambling increase gambling consumption?' An exploratory study' (2014) 14 International Gambling Studies 394.

[265] Ibid 404.

[266] Ibid 405.

[267] Lapsed gamblers are pathological gamblers who stopped gambling in order to start treatment for their gambling disorder.

[268] Hing and others (n 264) 405.

[269] Ben Amey, People's participation in and attitudes to gaming, 1985-2000: Final results of the 2000 survey (New Zealand: Department of Internal Affairs, Wellington 2001).

Thereby, problem gamblers are more likely to recall gambling-related advertising, which, as a consequence, contributes to an excessive way of gambling.[270] The presented scientific findings, which are mainly based on quantitative research, seem to confirm that we ought to consider advertising a gambling-related risk. However, it is quite reasonable to wonder why gambling advertising may lead to adverse consequences. Again, despite the limited number of scientific findings, there are qualitative analyses that provide interesting answers to this question.

The most common goal of advertising strategies is generally considered to be the creation of a positive perception of certain products in the eyes of the consumer. Binde considers fantasies, specifically those fantasies about becoming happy, as a crucial factor for the success of gambling advertising. These fantasies/dreams are the common denominator between gambling and advertising.[271] From a business perspective it is quite legitimate to utilize various strategies to advertise gambling as a sort of desirable entertainment in order to form a positive perception about gambling amongst consumers. Moreover, gambling advertising is not unique in creating positive public perceptions about a service that can obviously jeopardize human health. Making parallels between the advertising of tobacco and gambling in the USA, Friend and Ladd discovered that middle-school and high-school students were subject to high levels of exposure to tobacco and gambling advertisements. Misinformation and a lack of understanding about the risks involved in the consumption of said products/services, are the result of a successful design of the corresponding advertising campaigns that formed positive perceptions regarding said products/service.[272] However, the success of advertising strategies, evidenced by a positive perception about gambling, should not only be ascribed to the design of advertisements and related games[273], but also to a cultural acceptance of gambling[274].

Whereas advertising strategies regarding the promotion of tobacco exploited certain social features of youth, such as dissent and escapism[275], gambling was presented as a socially acceptable and desirable way of having fun through its close connection with sport. The relationship between sport and gambling influences the positive framing of gambling.[276] McMullan and Miller noticed that the 'sportification' of gambling and 'gamblification' of sport are common in this day and age.[277] Notwithstanding some main concerns regarding cooperation between sport associations and gambling companies that mainly refer to the preservation of the integrity of sport and the protection of consumers[278], this kind of cooperation

[270] Derevensky and others (n 262) 31.
[271] John L. McMullan and Delthia Miller, 'All in! The commercial advertising of off-shore gambling on television' (2008) 22 Journal of Gambling Issues 230, 244.
[272] Karen B. Friend and George T. Ladd, 'Youth gambling advertising: A review of the lessons learned from tobacco control' (2009) 16 Drugs: education, prevention and policy 283, 286-88.
[273] For more about see: John L. McMullan and Melissa Kervin, 'Selling Internet Gambling: Advertising, New Media and the Content of Poker Promotion' (2012) 10 International Journal of Mental Health and Addiction 622; David Korn, Tim Hurson and Jennifer Reynolds, 'Final report: Commercial gambling advertising: Possible impact on youth knowledge. Attitudes, Beliefs and Behavioral intentions' (Ontario Problem Gambling Research Centre 2005).
[274] Griffiths (n 261) 15.
[275] For more about see: J. E. Marllow, 'The last gasp: Cigarette advertising on billboards in the 1990s' (2001) 25 Journal of Communication Inquiry 28, 42-43; Derevensky and others (n 262) 31.
[276] Adrian Parke and others (n 251) 24.
[277] McMullan and Miller (n 271).
[278] Stephen M. McKelvey, 'The Growth in Marketing Alliances between US Professional Sport and Legalised Gambling Entities: Are We Putting Sport Consumers at Risk?' (2004) 7 Sport Management Review 193

is very lucrative and usually realized with mutual satisfaction[279]. The sportification of gambling forms a positive impression of gambling and connects sport, gambling and dominant cultural patterns.[280] It could be said that sport eliminated the anathema of gambling as a vice and transformed it into a socially acceptable leisure activity.[281]

It could be summarized that despite the limitations of empirical research regarding the impact of gambling advertising on problem gambling, it is difficult to refute the likelihood that some form of correlation exists between these two phenomena. Whereas empirical studies indicate certain elements of these correlations, additional scientific studies reveal the social and cultural factors that explain the relationship between gambling advertising and problem gambling. However, the presented findings do not focus on particular kinds of advertising strategies. Taking into account the role of data processing for commercial communication purposes, the following section sheds light on behavioral advertising and profiling.

3 Behavioral advertising and profiling

Online behavioral advertising is a digital marketing tool that is very present in the online environment. Digital marketing serves to promote products, services and brands through electronic media.[282] In comparison to the traditional way of advertising, behavioral advertising includes the increased presence of proxy companies between the advertiser and the publisher that optimize advertising activities and lead to more effective outcomes.[283] The effectiveness of online behavioral advertising is in the sending of advertising that appeals to an online consumer's personal interest in particular products.[284]

In general, the process of online behavioral advertising can be divided into two sets of actions. Firstly, companies observe the behavior of individuals over time. They look for characteristics of behavior through the actions of said individuals (web browsing activities, site visits, time spent on sites, keywords, online content production etc.). The purpose of observing their behavior is to profile potential consumers in order to create a more detailed picture regarding their interests, preferences and life. The second set of actions comes after said profiling and mainly refers to the sending of profile-based advertisements that are considered relevant to the personal interests of individual consumers.[285]

Online behavioral advertising and profiling are based on the complex process of knowledge discovery in databases (hereinafter KDD).[286] KDD is defined as a "nontrivial process of identifying valid, novel,

[279] Lee Davy, 'The Budding Relationship Between Football Sponsorship and Gambling' (Calvin Ayre, August 2013) <http://calvinayre.com/2013/08/29/sports/football-sponsorship-and-gambling-relationship/> , accessed on 3rd March 2016

[280] McMullan and Miller (n 271) 243.

[281] Adrian Parke and others (n 251) 25.

[282] 'digital marketing' (*Business Dictionary*) <http://www.businessdictionary.com/definition/digital-marketing.html> accessed 23 November 2017.

[283] European Interactive Digital Advertising Alliance (EDAA), 'Your Online Choice – a Guide to Online Behavioral Marketing' <http://www.youronlinechoices.com/uk/about-behavioural-advertising> accessed 23 November 2017.

[284] Ibid.

[285] Article 29 Data Protection Working Party, 'Opinion 2/2010 on Online Behavioral Advertising', 00909/10/EN WP171, 22 June 2010, 4-5.

[286] Usama Fayyad, Gregory Piatetsky-Shapiro, and Padhraic Smyth, 'From Data Mining to Knowledge Discovery in Databases' (1996) 17 AI Magazine 37, 38.

potentially useful and ultimately understandable patterns in data."[287] Marketing systems based on KDD analyze customer databases in order to determine different customer groups and predict their behavior.[288] In order to explain how consumers' interests are recognized, we should turn to a brief observation of the process of profiling. The following sections explain what the process of profiling is. The notion of profiling is explained through the context of a story about two hypothetical gamblers – Alice and Bob. The incoming sub-sections present several facts from Alice and Bob's lives, how profiling can reveal new information about them and explores certain controversies surrounding profiling.

3.1 Alice and Bob are gamblers!

Let's try to conceive Alice and Bob's lives. Alice and Bob work in the same company, which is based in one of the suburban areas of their city. Alice has a repetitive daily and weekly routine. She lives close to the city center and is used to biking to her job every morning. She also takes the same route to come back home every day after 5 pm, when her shift is officially over. During the weekends, Alice visits the central city stadium to watch her local soccer club play. This club competes in the national championship.

Unlike Alice, Bob is a more dynamic person. He is a single young man who regularly works out, and visits different bars and nightclubs. Traveling is his passion and he often visits new places. One of his repetitive habits is visiting the restaurant nearby his workplace during lunchtime.

Despite the differences between Bob and Alice's lifestyles, they both share a common passion for online gambling. Alice prefers in-play betting.[289] Her weekend routine includes betting on the game result of the soccer club she watches. Bob does not bet, but he prefers online casino games, especially roulette. He is a more frequent gambler and his gambling behavior includes several daily gambling sessions, especially during his lunchtime, but also in the evening and at night.

3.2 Profiling as knowledge extraction

To explain how profiling works, we can start with the epilogue of this short story about Alice and Bob, bearing their gambling interests in mind. Both Alice and Bob have received attractive adverts. Alice was offered a special bonus for in-play betting on mobile devices and, in addition, was awarded with a special discount for a full-season ticket for games at her local soccer club. Bob, on the other hand, received an offer for a cashback bonus[290], as well as a lunch discount for a restaurant not so far from his job. It seems that the advertising and offers they received really matched their personal interests. If we suppose that Alice and Bob received these adverts as a consequence of online behavioral advertising, then it would be correct to infer that the perceived features of Alice and Bob gambling behavior are based on a complex process of profiling.

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[287] Usama Fayyad, Gregory Piatetsky-Shapiro and Padhraic Smyth, 'Knowledge Discovery and Data Mining: Towards a Unifying Framework' (AAAI, KDD-96 Proceedings, 1996) <https://www.aaai.org/Papers/KDD/1996/KDD96-014.pdf> accessed 23 November 2017, 83.

[288] Ibid.

[289] In-Play betting is betting that takes place after an event has started and up to its conclusion. For more about see: Betffair web page, 'What is in-play betting?' <https://betting.betfair.com/what-is-in-play-betting.html> accessed 23 November 2017.

[290] A cashback bonus is offered bonus in return for previous losses. For more about see: AskGamblers, 'Cashback Bonus' <http://www.askgamblers.com/bonus/cashback> accessed 23 November 2017.

The process of profiling can be observed from various perspectives. According to the GDPR, profiling is defined as "any form of automated processing of personal data consisting of the use of personal data to evaluate certain personal aspects relating to a natural person, in particular to analyse or predict aspects concerning the natural person's performance at work, economic situation, health, personal preferences, interests, reliability, behavior, location or movements."[291] The processing of data is "any operation or set of operations which is performed on personal data[292] or on sets of personal data whether or not by automated means (…)".[293] As we can see, personal data can be processed by automated or other means. Nevertheless, the GDPR defines profiling solely within the parameters of processed data by automated means. Therefore, for profiling purposes, we not only need available data, but also the means for the automated processing of such data - a computer, the internet and smart algorithms whose work combine the fields of artificial intelligence, data mining and machine learning.[294]

Personal data can be processed both at the individual and aggregate level. For profiling purposes, the aggregate level is particularly important. Namely, profiling provides the means from which to infer knowledge about an individual who is not directly observed.[295] The knowledge about a particular type of individual (e.g. Alice or Bob) derives from KDD. KDD is composed of several phases that include data collection, data preparation, data mining, data interpretation and acting upon discovered knowledge.[296] These phases serve to extract knowledge from huge amounts of data through a 'three-tier process' of data collection, analysis and use.[297]

The KDD process begins with a determination of the goals and the selection of data that will be processed. In cases such as those of Alice and Bob one can assume that the advertiser's goal is to send an advertising appeal that meets the personal interests of its consumers. After determining the goal, useless and inaccurate data should be eliminated (e.g. some available location data that does not indicate gambling behavior).[298] Afterwards, methods for further data processing have to be decided upon (e.g. clustering, the application of association rules, regression, summarization etc.). The following step is known as data mining. Data mining requests the application of an algorithm that matches previously determined methods. Data mining is at the core of KDD, where new patterns[299] in datasets

[291] GDPR, Recital 71, art 4(4).

[292] 'personal data' means any information relating to an identified or identifiable natural person ('data subject'); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person; GDPR, art 4(1).

[293] GDPR, art 4(2).

[294] Martijn van Otterlo, 'A machine learning view on profiling' in Mireille Hildebrandt and Katja de Vries (eds), *Privacy, Due Process and the Computational Turn: The philosophy of law meets the philosophy of technology* (Routledge 2013), 40.

[295] Ibid 41-42.

[296] Bart Custers, *The Power of Knowledge: Ethical, Legal, and Technological Aspects of Data Mining and Group Profiling in Epidemiology* (Wolf Legal Publishers (WLP) 2004) 17-20.

[297] Zarsky (n 245) 4-5.

[298] This process is known as 'data warehouse', where sub-process of data cleaning or data cleansing are conducted. For more about see: Tal Zarsky, '"Mine Your Own Business!": Making The Case for The Implications of The Data Mining of Personal Information in The Forum of Public Opinion' (2003) 5 Yale Journal of Law and Technology 8.

[299] According to Fayyad, Piatetsky-Shapiro and Smyth "Pattern is an expression describing (…) a subset of the data or a model applicable to the subset." For more about see: Fayyad, Piatetsky-Shapiro and Smyth (n 286) 41.

are discovered or suspected relations are confirmed.[300] Through this process, the information about Alice's preferences toward in-play betting and Bob's passion for online roulette obtain new values. The conjunction of this data with the location data of where gambling sessions take place (Alice at a stadium; Bob at a restaurant) and data about the time of their sessions (Alice at the weekend during games; Bob every day during lunchtime and evening hours) provides service providers with new facts. Now, Alice and Bob may be aware of these facts. However, they may not be aware of certain patterns in their gambling behavior (for instance the rule that online gamblers who prefer in-play betting more frequently bet on the first goal scorer than those that do not practice this type of betting. Later on, this rule will turn out to be correct in Alice's case). This novelty is the essential element of both data mining and KDD.[301] Thus, Hildebrandt et al. claim that the knowledge obtained from profiling "is applied to an individual user to infer additional facts, preferences and presumed intentions".[302] In the last phase of profiling, the obtained knowledge could be checked and reconsidered. Once the knowledge is confirmed, it could be presented and applied. During the application of said knowledge for marketing purposes, consumers such as Alice and Bob receive advertising appeals that meet their interests.

3.3 Behind the curtain of profiling

Profiling might be perceived as a useful process that contributes to progressive developments in various domains - industry, science, marketing, finances, criminal investigations, national security etc. Notwithstanding the fact that profiling brings a new quality to existing knowledge, it is a process that carries various risks. Considering how behavioral advertising can considerably affect the personal lives of individuals, an important question is whether consumers (such as Alice and Bob) understand the logic behind these processes and their effects, and whether they are aware of them in advance, before they start gambling.

When proposing the Reno model, its authors gave a very important role to the principle of gamblers' informed choice.[303] However, profiling processes carried out for commercial communication purposes do not contribute to the principle of gamblers' informed choice. As previously explained, the effects of profiling technologies cannot be estimated in advance. Therefore, it is quite a challenge to inform a gambler about what is going on when the profiling process is carried out. Even a profound understanding of the technical aspects of the profiling process (regardless of how complex they are) would be insufficient for estimating the effects profiling will have in the domain of online gambling. Analyzing the risks of the practice of profiling, Hildebrandt realizes that the customization of services is often based on fitting data subjects into previously formed categories.[304] In that way the data processor classifies data subjects according to their similarity. Alice and Bob, for example, might be very different types of gamblers. Alice could be a moderate gambler, Bob could be a gambler at risk. They may even have a friend, Carol, that is a problem gambler with a medical disorder. In this case, we would have three different persons and three different types of gamblers. However, Bob and Carol might belong to the same group of online gamblers, due to their preferences toward (for example) online roulette, whereas Alice might belong to a group of gamblers that prefers online betting. If they use the same

[300] Custers (n 296) 18.
[301] Tal Zarsky, (n 289).
[302] Martijn van Otterlo (n294) 42.
[303] For more about see Chapter III, subsection 4.2.2.
[304] Mireille Hildebrandt, 'Profiling and Identity of the European Citizen' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizen: Cross-Disciplinary Perspectives* (Springer 2008), 305-306.

online gambling service, it might be presumed that profiling each of these three persons could be based on the same technology. The specific decisions made by Bob and Carol may not necessarily differ, since they prefer the same type of gambling. However, the effect behavioral advertising has on them might be considerably different. One could imagine a scenario where after receiving a commercial communication based on behavioral advertising, Alice keeps gambling in a moderate way, Bob experiences a negative change in his gambling behavior, increasing the amount that he gambles, and Carol's situation worsens, based on her propensity for chasing losses. Different scenarios are, of course, also possible. However, it has to be stressed that by eliminating unique personal factors that shape gambling behavior, the data processor decreases their ability to find out whether Carol is allowed to receive any commercial messages about gambling. For that reason, commercial communication based on behavioral advertising might expose Carol to high-levels of risk by jeopardizing the principle of gamblers' informed choice, which promotes decision-making in relation to gambling without any coercion, inducement or influence.[305]

Apart from creating risks that may jeopardize online gamblers, behavioral advertising might endanger the personal privacy of gamblers too. These two domains of gamblers' lives are interwoven. Complex and dynamic environments which are composed of the interplay between family relations, social activities, professional obligations and gambling habits influence (and are influenced by) gamblers such as Alice and Bob, and their gambling behavior. However, only a few aspects of Alice and Bob`s lives are of interest to online gambling service advertisers. Yet, keen advertisers not only collect as much data as possible regarding an individual's particular gambling behavior, but also purposefully process data that may lead to effective commercial communication. Therefore, the process of profiling is concerned with certain features of Alice and Bob`s lives. It might be said that the profiles that are formed for Alice and Bob, for commercial communication purposes, are contextual - organized for a certain purpose within determinate aims. Thus, profiling is not concerned with the spheres of a person's life that are not necessary for the purpose at hand. From a business perspective this is quite a legitimate approach. For example, in the story about Alice and Bob, several pieces of information that pertain to different facts of their lives are noticeable. Some such information is concerned with their location, and indicates their workplace, Alice's place of residence, her Biking route, the places where they bet and the restaurant where Bob has lunch. Online gambling service providers are probably not interested in obtain all of this data. However, some of the location data is useful to gain an insight into Alice and Bob's geo-position and the possible implications this has on their gambling behavior. Location based inferences not only involve the tracking of subjects, but also the collection of information about the location.[306] Therefore, it could be presumed that the central city stadium is quite a convenient place for in-play betting. However, Alice's gambling ritual is conducted away from her home and her workplace. Should we infer that she doesn't want to gamble in front of the curious eyes of her family members or colleagues? In addition, the location of the gyms, bars and night clubs that Bob visits are useful for different sorts of inferences. The convergence of data about the location where he gambles (e.g. a bar or a night club), data about the time of gambling (e.g. late at night) and data related to his gambling behavior (e.g. incidence and frequency of gambling) may indicate problematic behavior. Despite the lack of conformation, this is a possible inference. Profiling may lead to different social conclusions that affect the personal lives of individuals. Maybe our gamblers are afraid of stereotyping and the stigmatization associated to

[305] For more about see in Chapter III, subsection 4.2.2.

[306] Ronald Leenes, 'Reply: Mind My Step?' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizen: Cross-Disciplinary Perspectives* (Springer 2008), 166.

gambling, and how this may affect their relations with their colleagues, family members and overall environment.

It could be concluded that gaining an insight into someone's gambling behavior requires the observation of his/her particular state. However, service providers collect gamblers' explicit data and further conclusions (including those necessary for profiling purposes and behavioral advertising) are implicitly made, usually by categorizing data subjects into pre-formed categories of consumers. Such an approach is not necessarily wrong, but requests a large volume of data to be processed in a very sophisticated way. For that purpose, using as much available data sources as possible seems desirable.

3.4 Where do advertisers get their data from?

This section is concerned with the policies service providers have regarding the use of gamblers' personal data for advertising purposes. Privacy policies from a selected number of online gambling service providers have been examined in order to reveal the business practice regarding the processing of gamblers' data for the purpose of behavioral advertising. The findings suggest the sources from which service providers can obtain gambler data that is then used for behavioral advertising.

In order to achieve this goal, an analysis of the privacy policies of 11 online gambling service providers has been carried out. The selection of online gambling service providers operating in Europe was based on their presence in the most developed market – the United Kingdom (UK) – and on their size (large and small providers). Relevant data was taken from the Data Report created by Gambling Compliance[307], a global provider of independent business intelligence to the gambling industry. Policies from the five largest online sports betting providers (*Betfair, Bet 365, William Hill, Paddy Power,* and *Ladbrokes*), who together have a UK market share of about 75%, were examined. The privacy policies of an additional six operators (*Betfred, Stan James, Coral, BetClick, Betwin* and *Bet at Home*), who have from 2.5% to a less than 1% presence on the UK online sports betting market, were also assessed. In total, the UK online sports betting market presence of the listed companies was approximately 84%.

Table 1 – Service providers' presence on the UK online sport betting market in 2012

Service provider	Market share
Betfair	22.0 %
Bet 365	19.0 %
William Hill	15.0 %
Paddy Power	12.0 %
Ladbrokes	7.5 %
Betfred	2.5 %
Stan James	2.0 %
Coral	2.5 %
BetClick	<1 %
Betwin	<1 %
Bet at Home	<1 %
Overall	Approx. 84 %

[307] Gambling Compliance, 'European Regulated Online Markets: Data Report' (2012), sec 1: UK Data Report.

The referenced source about the market share of the observed companies refers to the situation of the UK market in 2012. Of course, this source is relatively dated. However, due to the fact that the latest data reports are inaccessible, this report from 2012 has been used, and can be considered sufficiently reliable for the selection of large and small providers. According to the author's hands-on experience in relation to the online gambling domain in the EU, and according to various available data sources, the service providers whose policies were analyzed are still the most important industry representatives. The positon of the biggest companies in the market has not changed despite the arrival of some other service providers since 2012.[308] Additionally, all observed operators are still well positioned in the UK market and in the various markets across the EU. In addition, the observation of the privacy policies of those companies that are not included in the research sample demonstrated insignificant differences between them and those that are included in the sample.

The analysis sheds light on various sources used for the collection of gamblers' personal data, including data collected for commercial communication purposes. Due to the vague limits of data processing purposes this section not only observes data sources that would only be used for commercial communication purposes, but is also interested in data and sources that are used for other purposes. The reasons for such an analytical modus operandi are that gamblers' personal data processing often serves many purposes and that data that is of no current value for commercial communication purposes could gain value for advertising purposes in the future (more details and an in-depth analysis on different mechanisms and purposes for the processing of gamblers` personal data are presented in the following chapters).

3.4.1 Findings

The research has shown that online gambler data is mainly collected during the process of registration and the provision of services. By registering with any of the analyzed service providers, a gambler accepts their privacy policy and provides consent for the processing of their personal data as stipulated in the policy. Whilst an individual is gambling, service providers and third parties are allowed to collect various amounts of data related to the gambler, their gambling behavior and their finances. Diverse technical infrastructures are applied for that purpose.

One of the most widely used methods for collecting data is through the use of cookies. A cookie is a small piece of data that a website asks a browser to store on the computer or mobile device. A cookie allows the website to 'remember' the user's actions or preferences. In general, the purpose of cookies is to foster the improvement of the performance of a web-page's functioning, the facilitation of user identification, and for advertising and analytical purposes. Considering the lifespan of cookies, they may be session-based cookies or persistent cookies.[309] Depending on the party that supplies the cookies

[308] It is worth mentioning that Betfair and Paddy Power merged in 2015. For more about this see: The Guardian, 'Paddy Power and Betfair merger agreed' <https://www.theguardian.com/business/2015/sep/08/paddy-power-and-betfair-merger-agreed> accessed 23 November 2017; In addition, in 2016 Ladbrokes and Coral carried out merger process forming Ladbrokes Coral Group plc. For more about see: Poker News, 'Ladbrokes and Gala Coral Complete £2.3 Billion Merger' <https://www.pokernews.com/news/2016/11/ladbrokes-and-gala-coral-complete-2-billion-merger-26250.htm> accessed 23 November 2017.

[309] Session-based cookies have a temporary form. Whenever a customer closes a browsing session, the browser cookies are erased. Persistent forms of cookies are stored in a user's browser for a predefined period of time. For more about see: Bwin, 'Privacy Policy: art 7(2)(2)' <https://help.bwin.com/pt/general-information/security/privacy-policy> accessed 23 November 2017.

Differences also exist between first-party and third-party cookies.[310] Regardless of the different types of cookies, by registering and consenting to all the rules within a privacy policy, online gamblers accept the use of cookies for different purposes. By doing so, a user accepts cookies that will collect and process online gambler data.

Apart from the use of cookies, data collection might be carried out by self-reporting (including registration) and self-assessment. These are two-step processes composed of data revealing and data recording. In the case of self-assessment, gamblers have to express what they think about themselves. That information is then recorded and stored. In the case of self-reporting, gamblers provide information about themselves devoid of their personal opinions (e.g. by revealing their personal name, contact number, or home address). Finally, service providers could make use of certain assistance provided by third parties when they process their customers' data.

3.4.1.1 Self-reporting and self-assessment as data sources

As a necessary first step for gambling online, gamblers must complete a registration process on the chosen service provider's web page. This process is the first procedural step where a gambler is required to reveal their personal data. A successful registration is composed of several phases[311] that have to be traversed in order to form a personal account for gambling purposes. During the registration process, gamblers reveal data, such as their first and last name, date of birth, credit card information, home or other physical address, email address, phone number or other contact information, gender, ID card number, profile picture and friend list.[312] Considering that the personal data revealed during the registration process has to be verified, it could be assumed that alongside said personal data, information about verification instruments may be stored in the registration database. In addition, by registering themselves, customers create usernames, passwords and a secret question to form the authentication mechanism for logging in to their personal account.[313] Data collected during the registration process might be obtained from gamblers when they fill out the registration form or may be provided by phone, email or other written communication.[314]

After their successful registration, gamblers may start gambling. However, whilst gambling they could experience various problems and, in order to solve them, might need to contact the representatives of the service provider in question. Their communication might be recorded and collected. Gamblers might ask for professional assistance if they have gambling-related problems. Also, gamblers could face various technical problems for which customer support has to be contacted. In addition, other types of gambler communication such as in chat rooms or message boards, comments left during gambling and those for

[310] For more about first and third party cookies see: Article 29 Data Protection Working Party on behavioral advertising (n 285) 6; European Commission, 'Information Providers Guide: The EU Internet Handbook' (21 September 2016) <http://ec.europa.eu/ipg/basics/legal/cookies/index_en.htm> accessed 23 November 2017.

[311] The registration process concerns an authorization of customers that is particularly important for the determination of a consumer's age, which should satisfy the relevant legal requirements for the age threshold for gambling. More about in Chapter V, subsection 3.1.

[312] Bwin, 'Privacy Policy: art 2' <https://help.bwin.com/pt/general-information/security/privacy-policy> accessed 23 November 2017.

[313] BetClic, 'Privacy Policy: art 1' <https://en.betclic.com/content/privacypolicy> 23 November 2017.

[314] Bet at Home, 'Privacy Policy: art 1.1' <https://www.bet-at-home.com/en/privacypolicy> 23 November 2017.

reviewing purposes, might also be recorded and stored. Feedback about gambling services obtained through different types of surveys and analyses could also be collected by service providers.[315]

Concerns about their own gambling behavior may influence a gambler's decision to exclude themselves from the gambling services offered by a particular operator or from a particular game for a certain period of time. These widespread responsible gambling measures are known as self-exclusion[316] and time-out mechanisms. By registering to self-exclusion and time-out databases, online gamblers form other sources of personal data. An additional contribution to personal data collection is the self-assessment tests that might be requested before gambling starts. In that way gamblers enrich the databases with their personal data.[317]

3.4.1.2 The use of cookies

The analyzed privacy policies contain parts related to the use of cookies, explaining their roles in data collection and processing. Those service providers whose privacy policies do not contain norms on cookies (Stan James, Bet365 and Betfair) have separate cookie policies that regulate the use and function of cookies. While some policies contain full lists of cookies with descriptions of their purpose, some others only contain lists and descriptions of different cookie categories. A third group of policies does not describe which categories of cookies they use, but do stress the fact that they use cookies.

While gambling, gamblers decide on the type of games they play, how long they will play them for and the amount of money they will spend. This data is particularly valuable for providing an indication of personal preferences towards gambling and related details such as the payments necessary for gambling and other financial transactions.[318] Therefore, a gambler's decisions and their subsequent actions regarding gambling are the fundamental sources for gambler-related data. Nevertheless, some data may indicate decisions made by gamblers that are not directly related to gambling. Service providers might collect login data, data regarding access to different non-gambling related content, the page's interactive information (e.g. scrolling, mouse clicks and the position of the mouse pointer), preferred language use and methods that indicate how customers leave the relevant pages.[319] From a technical perspective, this data, which does not reflect a gambler's interests, is collected through the use of cookies.

The analysis of selected privacy policies demonstrated that service providers use cookies to collect a considerable amount of data that is not generated by gamblers' decisions. For example, online gambling service providers collect data concerning the technical infrastructure of devices used by gamblers to access their web pages. Some data within this group includes the IP addresses of gamblers' devices, data that indicate the type and version of the browser that gamblers use, the internet access provider, software crash reports,[320] or other technical information related to the device used to access online

[315] Paddy Power, 'Privacy Policy: art 4.3' <https://support.paddypower.com/app/answers/detail/a_id/9/~/privacy-%26-cookie-policy> accessed 23 November 2017; Ladbrokes, 'Privacy Policy: art 1' <http://helpcentre.ladbrokes.com/app/answers/detail/a_id/272/~/privacy-policy> accessed 23 November 2017; Coral, 'Privacy Policy: arts 2(1.15), 2(1.16)' <http://coral-eng.custhelp.com/app/answers/detail/a_id/2132/~/privacy-policy> accessed 23 November 2017.

[316] For more about self-exclusion mechanism see Chapter V, subsection 3.3.

[317] For more about self-assessment tests see Chapter VII, subsection 4.3.

[318] Ibid (n 315).

[319] Bet at Home, 'Privacy Policy: art 1.2' <https://www.bet-at-home.com/en/privacypolicy> 23 November 2017.

[320] Ibid; BetClic, 'Privacy Policy: art 1' <https://en.betclic.com/content/privacypolicy> 23 November 2017.

gambling services.[321] The conducted analysis demonstrated that cookies are necessary for the functioning of web pages and for the provision of an online gambling service and its overall technical system. So called 'essential cookies'[322] enable access to secure areas of the web page that are particularly important for placing a secure stake, depositing funds and accessing the shopping basket.[323] These cookies may also record the geolocation of a user.[324] In addition, cookies may serve for the improvement of the technical performance of web pages (web analytics, ad response rates, error management, testing design[325]). They could customize user experiences[326] by remembering users' settings, detecting services that have already been offered[327] or recognizing the language that a user prefers. Concerning the monitoring of a concrete individual, cookies might be used to analyze a gambler's behavior and evaluate it in order to improve the service offered.[328] Therefore, cookies serve the purpose of recognizing registered gamblers in two ways - to authenticate them and to match their personal preferences. Cookies used for authentication and identity checks allow users to login to the webpage.[329] However, cookies do not merely carry a controlling or monitoring function. Their recorded results might be sent to other technological agents whose function is to carry out several useful analyses.

3.4.1.3 Third party services and databases

Apart from their role in data collection, cookies have an important function in data analytics. The analysis of selected privacy policies showed that third parties use cookies to create implicit data that is very usable from the business perspective. In addition, cooperation with third parties might result in an exchange of data that is not necessary linked to the use of cookies.

So called analytical cookies are usually third-party cookies (Bwin uses the services of Adobe and their cookies for analytical purposes, Bet-at-Home's analytics rely on Google's web analytics services and Inspectlet services, and Betfair uses Google and Yahoo analytics). Analytical cookies monitor the movements of concrete users around webpages, or groups of users selected under certain criteria (e.g. gender, age or demographic bases). This data can be used in various different ways, but the purpose that is primarily emphasized in the analyzed policies relates to statistical analyses that serve the improvement of business performance. Data obtained through the use of cookies might be transferred

[321] Ibid (n 315).
[322] This term is used by Betfair Privacy Policy
[323] Bwin, 'Privacy Policy: art 7.5' <https://help.bwin.com/pt/general-information/security/privacy-policy> accessed 23 November 2017; Betfair, 'Privacy Policy: Cookies' <http://www.betfair.com/aboutUs/Privacy.and.Data.Protection/#Privacy2> accessed 23 November 2017 January 2017.
[324] Betfair, 'Privacy Policy: Cookies' <http://www.betfair.com/aboutUs/Privacy.and.Data.Protection/#Privacy2> accessed 23 November 2017 January 2017.
[325] Bwin, 'Privacy Policy: art 7.5' <https://help.bwin.com/pt/general-information/security/privacy-policy> accessed 23 November 2017.
[326] Paddy Power, 'Privacy Policy: art 7.3' <https://support.paddypower.com/app/answers/detail/a_id/9/~/privacy-%26-cookie-policy> accessed 23 November 2017.
[327] Ibid (n 325).
[328] Bwin, 'Privacy Policy: art 10' <https://help.bwin.com/pt/general-information/security/privacy-policy> accessed 23 November 2017.
[329] Ladbrokes, 'Privacy Policy: art 5.2' <http://helpcentre.ladbrokes.com/app/answers/detail/a_id/272/~/privacy-policy> accessed 23 November 2017.

to a third party, as it is necessary for the prevention of "anti-money laundering, verification of customer identity and prevention of fraudulent transactions."[330]

Cooperation by online gambling service providers with third parties may include the exchange of gamblers' data. Service providers may receive data related to gamblers from their affiliates, suppliers, partners and sub-contractors.[331] Whilst third parties play an important role in the creation and exchange of data for commercial communication purposes, they are also important in regards to financial transactions. Financial institutions that process electronic payments are a necessary intermediary between gamblers and online gambling service providers.[332] At the very least, they have to be included in the depositing and withdrawing of gambling-related financial means.

All privacy policies contain rules regarding the flow of gamblers' data. Despite slight differences among policies related to this issue, a common feature in all examined policies is that gamblers' data can be transferred to a third party. Apart from the fact that third parties may offer their services to gamblers, they also process data on behalf of service providers for various purposes, including for promotion and advertising purposes.

4 Synthesis

This chapter has given an account of online gambling (behavioral) advertising as a contributor to problem gambling in the EU. What is presented gives support to a causal relation between gambling advertising and problem gambling with certain types of users. Also, an analysis of 11 privacy policies showed that online gambling service providers have well-built channels to collect and process the personal data of online gamblers.

Despite certain limitations, there is sufficient evidence from scientific studies to suggest that gambling advertising shapes gambling behavior, decision-making processes and could incite problem gambling in certain users. Therefore, gambling advertising should be considered a gambling-related risk. However, gambling advertising alone does not provoke problem gambling, including the associated health disorders that come with it, among the whole gambling population. Comparing notes on tobacco use (or any other product that endangers human health) with gambling could be useful, but may also lead to inaccurate inferences. It is well known that the smoking of cigarettes erodes its consumers' health. The adverse effects of smoking exist regardless of the features of consumption (frequency, scope, type of cigarettes). For that reason, commercial communication about tobacco products is very limited. Gambling can also jeopardize human health, but the analogy between gambling advertising and tobacco advertising is improper. Taking into consideration the scientific findings made so far, it might be claimed that in the majority of cases gambling does not erode human health. Moreover, the occurrence of problem gambling is influenced by various factors and, thus, is considered a unique phenomenon that should be observed on a case-by-case basis.[333] However, there exists a substantial amount of plausible

[330] Coral, 'Privacy Policy: art 5.2' <http://coral-eng.custhelp.com/app/answers/detail/a_id/2132/~/privacy-policy> accessed 23 November 2017.
[331] Coral, 'Privacy Policy: art 3.4' <http://coral-eng.custhelp.com/app/answers/detail/a_id/2132/~/privacy-policy> accessed 23 November 2017; Betfair, 'Privacy Policy: How your Personal Information will be used? <http://www.betfair.com/aboutUs/Privacy.and.Data.Protection/#Privacy2> accessed 23 November 2017.
[332] Coral, 'Privacy Policy: arts 3.7–3.9' <http://coral-eng.custhelp.com/app/answers/detail/a_id/2132/~/privacy-policy , accessed 23 November 2017.
[333] For more about see Chapter III, section 3.

research that demonstrates the relation between gambling advertising and the occurrence of the adverse effects of gambling. Scientific studies demonstrate that gambling advertising bears certain risks, particularly for vulnerable categories of consumers (young people, former gambling addicts, gamblers that try to decrease the amount they gamble). Therefore, one could infer that gambling advertising, in certain circumstances, and among certain consumers, may provoke adverse effects including those that jeopardize a gambler's health.

Behavioral advertising is a sort of advertising strategy that seeks to improve the effectiveness of marketing by matching personal interests with particular products. Thus, one could claim that behavioral advertising has a potentially even greater impact on problem gambling than conventional sorts of commercial communication. The use of sophisticated profiling technology and support from outsourced experts generates novel knowledge that is useful for facilitating advertising appeals that match a gambler's personal interests. This way, gamblers are offered games that attract their attention. From a business perspective, this is a desirable goal. Nevertheless, due to an increase in the effectiveness of capturing gamblers' attention, it can be presumed that behavioral advertising increases the likelihood of higher levels of gambling consumption or effective stimulation of urges to gamble. Notwithstanding the lack of conclusive empirically evidenced research about the influence of behavioral advertising on problem gambling, there is sufficient evidence to establish the hypothesis that online gambling behavioral advertising is a gambling-related risk and provokes problem gambling.

In favor of this hypothesis, there is a feedback loop that demonstrates the sustainable effectiveness of online gambling behavioral advertising, which is based on the development of a gambling-related risk (Figure 1). The first node in the feedback loop refers to the collection of gamblers' personal data. Online gambling service providers, as well as third parties acting on behalf of service providers, collect data in order to profile their consumers. Later, they process data that indicates gambling behavior and personal preferences toward specific games. When service providers create consumer profiles, they supply them with online gambling behavioral advertising appeals. In other words, they send them adverts that are likely to attract their attention. It can be presumed that after seeing these adverts, several gamblers will keep gambling or gamble more than they would otherwise do. In doing so, they generate more data about their gambling behavior. The additional data feeds back into the refining of gambler profiles that, subsequently, can be used for building more effective commercial communications. The overall process repeatedly occurs and every new round brings new knowledge about gamblers and their gambling behavior, further influencing the quality of commercial communications. Therefore, it appears that this feedback loop points to the gradual increase of gambling-related risks through every subsequent round of the process.

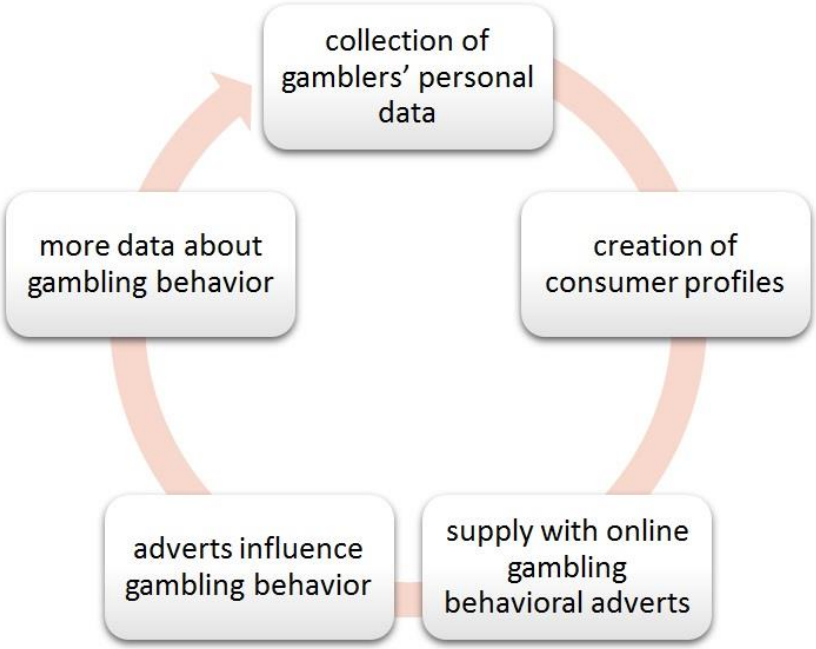

Figure 1 - Feedback loop on the sustainable effectiveness of online gambling behavioral advertising

Behavioral advertising and profiling are not limitless. Service providers have to align their marketing activities with mandatory legal rules. The law seeks to ensure that advertising content is not deceptive and/or untruthful.[334] Manipulative content may jeopardize personal autonomy and affects the protection of consumers' personal health and wealth. However, there is no reliable agent or institution, including the law, that can put the process presented in the feedback loop under total control. This is due to several reasons. Firstly, online gambling advertising is a gambling-related risk whose effects differ in different cases (some gamblers are not so sensitive to advertisements, whereas some others found commercial communication to be a main catalyst for their gambling-related problems, including problem gambling); secondly, there is no clear benchmark as to when an online gambler should be considered at risk or as suffering from problem gambling, nor do any widely accepted instruments exist that identify these sort of gamblers; thirdly, profiling has the potential to attribute new values to already existing knowledge with every round of the feedback loop. By doing so, the process becomes difficult to both follow and control; finally, even in a hypothetical case where new knowledge cannot be extracted by further data processing (e.g. a gambler constantly repeats his/her gambling routine), there is the potential for external intervention from the industry, which could offer new structural and situational elements to gambling (e.g. a gambler is offered similar or new games), elements that provoke new behavior and consequently generate new data that will further improve knowledge about gambler behavior. For these reasons, permanent improvements to online gambler protection should be part of a never-ending process that will include not only law, but also other types of regulations and strategies that could contribute to responsible gambling.

[334] EC Recommendation, art 41.

Chapter V: Identification and the identity of online gamblers

1 Introduction

The collection of gamblers' personal data and the subsequent processing of said data, could be described as a double-edged sword. On the one hand, the processing of online gamblers' personal data for commercial communication purposes exposes gamblers to gambling-related risks. On the other, online gambler protection is also based on data processing. The processing of personal data for protective purposes is based on the identification of online gamblers and the recognition of risky ways of gambling. For that reason, identification can be considered as a complex process of revealing one's identity that may serve various purposes, including gambler protection.

The goal of this chapter is to explain the significance of identifying gamblers and its potential role in their protection. Particular attention is given to identification for responsible gambling purposes. The implementation of a responsible gambling approach not only requires the proper identification of online gamblers, but also the detection of their gambling behavior. Therefore, several different identification mechanisms form the essence of the implementation of responsible gambling principles. For that reason, the most important mechanisms are presented in this chapter.

The first part of the chapter provides an in-depth observation of the theoretical aspects of identification and personal identity. This part aims to explain the complexity of personal identity, various perspectives made towards it and the possible implications of the process of identification. The second part of the chapter sheds light on the role online gambler identification plays in the protection of online gamblers, and is composed of three different sections. Firstly, the role of identification in the prevention of underage gambling is discussed. In the second section, identification is observed as a way of detecting problematic gambling behavior. The third section then focuses on the identification of self-excluded gamblers by presenting several different mechanisms of self-exclusion. The chapter ends with a synthesis of the topic.

2 Identification and personal identity

We are used to observing different things and then subsequently classifying them within (pre)conceived categories and groups. Our perception and cognition of entities of any kind (people, things, and actions) influence the judgments we make about them. In doing so, we create systems based on the differences, as well as the uniformities, that exist amongst entities. Our knowledge will contain information about features, values and specificities that we attribute to somebody or something. The utilization of these attributes enables us to engage in a complex process of recognition and identification.

In everyday life, identification refers to a set of processes related to the disclosure of information about a person and the usage of said information.[335] Certain information about a person, such as their personal name, date and place of birth, possession of certain citizenship and certain personal numbers,

[335] Thierry Nabeth, 'Identity of Identity' in Kai Rannenberg, Denis Royer and Andre Deuker (eds), *The Future of Identity in the Information Society: Challenges and Opportunities* (Springer 2009) 36.

refers to a set of identifiers that are probably sufficient for the police or tax officers in certain countries to be able to identify a particular person. The existence of an available database which contains data about tax payers or people with criminal records, enables purposeful identification in certain cases (e.g. for the identification of a person suspected of tax evasion). Therefore, it might be said that identification is a process that reveals data that refers to personal identity. Explaining the notion of personal identity, Nabeth focuses on a twofold perspective. The first can be referred to as the 'process perspective' of personal identity, whose meaning resembles what could be considered a widespread understanding of identification – the use of the most common identifiers in order to find out who someone is. The second, is the 'structural perspective' of identity, which views identity as a set of attributes characterizing the person in different contexts or activities.[336] Pfitzmann and Hansen define identity as "any subset of attribute values of an individual person which sufficiently identifies this individual person within any set of persons".[337] Thus, identity refers to a broad spectrum of attributes that individualize a certain person and that enable her/his identification within a group. The utilization of a set or subset of these attributes and relevant identifiers serve identification purposes.[338]

Our identity contains various elements that are used for numerous functions. Some of them are absolutely permanent, obtained at birth and unchangeable. For example, biological characteristics such as our DNA or fingerprints, as well as socio-cultural characteristics such as our biological parents, or our place and date of birth, are immutable. From a temporal perspective, we may note that some aspects of our identity are acquired over time. Some of them are embedded for a certain period of time (e.g. residence during university studies), whereas others permanently mark our identity from the moment they are acquired (e.g. university education). Therefore, parts of our personal identity are timeless and either completely or partially under our control. Some parts, however, are assigned, and related to a particular context, referring to either temporary or permanent features. There are, furthermore, parts of our identity that are created with or without our awareness, at an abstract or aggregated level[339].[340]

Psychological studies which focus on identity issues reveal several different aspects of identity perception. People can perceive their own identity and present themselves to their environment according to the ways in which they view themselves.[341] Such self-perception of personal identity refers to the first-person perspective.[342] Apart from self-perception, 'presentation' refers to the active form of presenting oneself to others, whereas 'representation' means an indirect presentation based on the perception of others.[343] Therefore, the permanent building and rebuilding of identity includes the first-

[336] Ibid.

[337] Andreas Pfitzmann and Marit Hansen, 'A terminology for talking about privacy by data minimization: Anonymity, Unlinkability, Undetectability, Unobservability, Pseudonymity, and Identity Management' (Version v0.34, August 2010) 30 <https://dud.inf.tu-dresden.de/literatur/Anon_Terminology_v0.34.pdf> accessed 24 November 2017.

[338] Mireille Hildebrandt, Bert-Jaap Koops and Katja de Vries 'D7.14b: Where Idem-Identity meets Ipse-Identity. Conceptual Explorations' in WP, *FIDIS The Future of Identity in the Information Society* (19 December 2008) 12 <http://www.fidis.net/fileadmin/fidis/deliverables/fidis-WP7-del7.14a-idem_meets_ipse_conceptual_explorations.pdf> accessed 24 November 2017.

[339] Like those created by use of profiling techniques

[340] Nabeth (n 335) 40-47.

[341] Ibid 39.

[342] Ibid.

[343] Arnold Roosendaal, *Digital Persona and Profiles in Law: Protecting Individuals' Right in Online Context* (Wolf Legal Publishers) 18.

person perspective and the perspective of others (the third-person perspective). However, it is difficult to make a clear distinction between these two perspectives. The first-person perspective generates a 'me'[344] perspective, that is constantly reconstructed due to the changes that third-person perspectives raise for one's particular identity. In other words, our perception about ourselves *inter alia* considers the opinions of others. In addition to the 'me' perspective, there is an 'I' perspective that is not as prone to reconstruction.[345] Notwithstanding various understandings of the concept of the 'I' as concerns identity, Nabeth considers the 'I' as an undetermined self-identity that is released from the influence of third-person perspectives.[346] Further differences between the identity concepts 'I' and 'me', can be seen when we look beyond the issue of self-perception. The presentation and representation of one's identity, for example, indicate a philosophical problem regarding the distinction between idem-identity and ipse-identity. These identities are complementary, and yet, at the same time, conflicting. The idem-identity refers to the sameness of an entity over time, as well as to its similarity with other entities that are placed in the same category. The ipse-identity refers to the sense of self and depends on continuity. On the one hand, the ipse-identity constructs the first-person perspective of identity that considers how one is different from others. On the other hand, the idem-identity is based on sameness and the similarities one can have with others. However, the fluid and dynamic structure of the ipse-identity not only depends on its own first-person perspective, but also on the idem-identity, including the perceptions we may have about ourselves that are influenced by third-persons.[347] Therefore, identity might be conceptualized "as an exclusive perception of life, integration into a social group, and continuity, which is bound to a body and – at least to some degree – shaped by society".[348]

Identity can be observed as the unity of all of a person's personal attributes, but also as a set or subset of attributes. A traditional model of identity associates one physical person to one identity.[349] Nevertheless, various social roles, such as being a parent, employee, student, tax payer or basketball player, create personal attributes and shape different parts of one's identity. Therefore, an identity may refer to a particular social role and/or to a complete identity that includes all roles.[350] Different activities create social roles in the physical world, but individuals make various actions in the online environment too. The development of new opportunities for social interaction, business transactions, education and entertainment, enlarge the scope of people's activities in the online environment. For that reason, activities undertaken in the online environment evolve the concept of identity, and form a digital

[344] Nabeth (n 335) 39.
[345] Hildebrandt, Koops and De Vries (n 338) 13.
[346] Nabeth (n 335) 39.
[347] For more about Ipse-identity and idem-identity see: Mireille Hildebrandt, 'Profiling and Identity of the European Citizen' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizen: Cross-Disciplinary Perspective* (Springer 2008) 312-314; Hildebrandt, Koops and De Vries (n 338) 15-17; Charles D. Raab, 'Difference and Categorization' in Ian Kerr, Valerie Steeves and Carole Lucock (eds) *Lessons from the Identity Trail: Anonymity, Privacy and Identity in a Networked Society* (Oxford University Press, 2009) 227-229; Roosendaal (n 343) 24-25.
[348] Pfitzmann and Hansen (n 337) 29.
[349] David-Olivier Jaquet-Chiffelle and others, 'Virtual Persons and Identities' in Kai Rannenberg, Denis Royer, Andre Deuker (eds), *The Future of Identity in the Information Society: Challenges and Opportunities* (Springer 2009) 79.
[350] Pfitzmann and Hansen make distinction between complete and partial identity. Complete identity refers to union of all attribute values, where as partial identity is a subset of complete identity. More about at: A terminology for talking about privacy by data minimization: Pfitzmann and Hansen (n 337) 31.

identity. According to Pfitzmann and Hansen, a digital identity is the representation of a partial identity and denotes personal data stored and processed by computer-based applications.[351]

Partial identities might be perceived as being isolated from each other. The social role of being a parent is obviously different from the role of being an employee. However, one's complete personal identity is not comparable to a wall built with partial-identity bricks. People are used to changing their behaviors, habits, activities, environments, relations and emotions. Thus, partial identities are not inalterable. Their structures tend to be rather flexible and dynamic (except the parts that are immutable) with the propensity to change other partial identities that one may have, as well as one's complete identity. The identity of an online gambler is not an exception, and therefore someone's identity as a gambler influences the other spheres of their life (and vice versa). This identity, composed of digital and non-digital parts, interacts with different social roles creating desirable, but also adverse factors in the life of a real-world individual. Some of the most challenging tasks concern how to identify an online gambler's partial identities and link them to form a more complete and accurate profile of said gambler, which is important for the responsible gambling approach, and so enable the timely recognition of gamblers at risk.

3 The role online gambler identification plays in the protection of online gamblers

The identification of gamblers is important for the implementation of a responsible gambling approach. However, different national and non-harmonized gambling regulations in the European Union influence the diversity of rules regarding the identification of online gamblers. The contemporary regulatory framework, *inter alia*, features different national approaches toward the utilization of responsible gambling measures. Therefore, in different Member States, responsible gambling measures – including those aimed at the prevention of problem gambling – are regulated, organized and implemented in accordance with national standards. Notwithstanding this legislative diversity, the identification of online gamblers and the implementation of responsible gambling measures are an inseparable part of online gambler protection in EU Member States. Concerning the prevention of problem gambling, as the most important goal in regard to responsible gambling, the identification of gamblers is performed to prevent underage people from gambling, as well as to protect other vulnerable groups of gamblers, in all EU Member States.

This part of the chapter sheds light on online gambler identification as a resource for the protection of online gamblers. The first section explains the significance of consumer identification for the goal of preventing underage gambling. This section explains why underage people are prohibited from gambling and points out certain controversies regarding the notion of underage people in the context of gambling in the EU. In addition, the principles of a robust and reliable system for the verification of consumers' data is proposed by presenting several different mechanisms that have been used for these purposes in different Member States. The following sections focus on the identification of online gamblers and its role in the protection of vulnerable groups of gamblers. Particular attention is given to the role of big data analytics and artificial intelligence and their use for the detection of risky gambling behavior. The subsequent part provides a detailed explanation of the function and organization of self-exclusion

[351] Pfitzmann and Hansen (n 337) 31.

mechanisms. The reason for giving particular attention to self-exclusion mechanisms is their widespread use by contemporary online gambling service providers in Europe.

3.1 Prevention of underage gambling

Underage people are not permitted to gamble.[352] It is one of the most important rules in terms of the protection of vulnerable consumers. However, there is no singular benchmark in the EU that determines an age threshold for gambling. Differences regarding both the age limit, and mechanisms for the verification of a customer's data that reveal how old he/she is, evidence a difference in approach among Member States.

3.1.1 'Underage people' are prohibited from gambling

The internet and its contents are omnipresent and often available to all generations. The internet offers numerous channels for young people to communicate with their friends, play, entertain themselves, learn, express their thoughts and even argue. Engagement in activities within the online environment starts at a very early period of life. A study conducted by The London School of Economics and Political Science shows that a substantial percentage of children in EU Member States being using the internet at a very early age.[353] In the UK, three out of four children under 8 years old go online. According to the study, in Germany considerable lower percentage of kids under 8 have access to the Internet (21%), whereas in other researched countries (France, Belgium, Sweden, Netherlands, Austria, and Norway) the percentage is higher, ranging from 50% to 70%. The EU Kids Online Survey found that almost 60% of Europeans aged between 9 and 16 go online on a daily basis, with youths between 15 and 16 years of age spending more than three hours online per day.[354] The same survey indicates that playing games and/or enjoying other forms of entertainment are highly ranked online activities among the researched sample. Going online should not be viewed as necessarily bad for the development of children and young people in general. The online environment can also lead young people to develop a lot of skills in ways that are quite desirable and productive. However, the Internet has also brought along the development of new social, psychological, cultural and economic risks, with certain existing risks having shifted from the offline to the online environment.[355]

Gambling as a way of entertainment is only permitted to adults. National gambling legislations should impose an obligation which requires the identification of a consumer's age before he/she can be permitted to gamble.[356] This obligation is one of the main goals of responsible gambling – the prevention of underage gambling. The fulfillment of this goal is the first step toward gambler protection. Despite the formal prohibition of underage gambling, an analysis of the available studies indicates that

[352] EC Recommendation, art 8.

[353] Donell Holloway, Lelia Green and Sonia Livingstone, 'Zero to eight: Young children and their Internet use' (The London School of Economics and Political Science, August 2013).

[354] Victoria Nash and others, 'Effective age verification techniques: Lessons to be learnt from the online gambling industry: Final Report: December 2012 – December 2013' (University of Oxford) 10 <www.oii.ox.ac.uk/publications/Effective-Age-Verification-Techniques.pdf> accessed 24 November 2017.

[355] For more about risks and benefits for children in using Internet see: Department for Children, Schools and Families, and the Department for Culture, Media and Sport, United Kingdom, 'Safer Children in a Digital World: The Report of the Byron Review' (Byron Review – Children and New Technologies) <http://webarchive.nationalarchives.gov.uk/20101021152907/http://publications.education.gov.uk/eorderingdownload/dcsf-00334-2008.pdf> accessed 24 November 2017.

[356] EC Recommendation, art 9.

77% to 83% of adolescents are involved in gambling.[357] In addition, the prevalence of risky/problem gamblers among young people and adolescents is considerably higher than among the general population.[358] The prevalence of problem gamblers among the youth population differs between different regions and countries. In their analysis of 44 studies about youth gambling (regarding gamblers whose ages ranged from 10 - 24) Calado et al. discovered that the percentage of the researched population that fulfills the criteria for problematic gambling differs from 0.2% to 12.3%.[359] Establishing the prevalence of underage gambling also depends on the metrics used to define problem gambling. In Denmark, around 1.3% of young people between 11 and 17 years old show indications of problem gambling.[360] Using the same diagnostic criteria as that used for Denmark, scientists in Finland arrived at a similar percentage of young people whose behavior might be described as showing evidence of problem gambling.[361] Yet, the implementation of different diagnostic criteria indicated that almost 8.0% of the interviewed adolescents in Finland could be identified as risky/problem gamblers.[362]

Findings from numerous research projects have demonstrated that underage people suffer from various adverse gambling consequences. Psychological, personal and financial problems among adolescents are the most prevalent gambling-related harms.[363] Adolescents are identified as a vulnerable group due to their propensity for developing severe gambling problems and the consequences these bring.[364] Young people have a higher tendency to engage in risky activities (especially during childhood and adolescence) than adults. Observing the literature, Hardoon and Derevensky point out several socio-cultural and psychological factors, as well as accessibility and availability of gambling, as proven contributors that influence (or are influenced by) gambling behavior among the youth population.[365] Cultural factors and social environments might also encourage young people (especially boys) to express their courage (or masculinity). In addition, financial motivation plays an important role in the decision-making process. Sensation seeking, as an important factor of personal development during the adolescent period, could influence the social and emotional state of an adolescent, as well as his/her need to seek rewards.[366] As a consequence, adolescent problem gamblers show a lack of self-esteem, a

[357] For more about see: Sari Castrén and others, 'At-risk and problem gambling among adolescents: a convenience sample of first-year junior high school students in Finland' (2015) 10 Substance Abuse Treatment Prevention and Policy <https://link.springer.com/article/10.1186/s13011-015-0003-8#citeas> accessed 24 November 2017; Dora Dodig and Neven Ricijaš, 'Obilježja kockanja zagrebačkih adolescenata' (2011) 18 Ljetopis socijalnog rada 103, 107.

[358] More about rates on risky/problem gambler in general population at: Karen K. Hardoon and Jeffrey L. Derevensky, 'Child and Adolescent Gambling Behavior: Current Knowledge' (2002) 7 Clin Child Psychol Psychiatry 263, 272; Sari Castrén and others (n 357)

[359] Filipa Calado, Joana Alexandre and Mark D. Griffiths, 'Prevalence of Adolescent Problem Gambling: A systematic Review of Recent Research' (2017) 33 Journal of Gambling Studies 397.

[360] Søren Ginnerup Kristiansen and Sara Marie Jensen, 'Prevalence and correlates of problematic gambling among Danish adolescents' (2014) 23 International Journal of Social Welfare 89.

[361] Calado, Alexandre and Griffiths (n 359).

[362] Sari Castrén and others (n 357)

[363] Neven Ricijas, Dora Dodig Hundric and Aleksandra Huic, 'Predictors of adverse gambling related consequences among adolescent boys' (2016) 67 Children and Youth Services Review 168, 172.

[364] Jeffrey Derevensky and Lynette Gilbeau, 'Adolescent gambling: Twenty-five years of research' (2015) 6 Canadian Journal of Addiction/Le Journal Canadien d'Addiction 4.

[365] Hardoon and Derevensky (n 358) 273.

[366] More about in: Laurence Steinberg, 'Risk Taking in Adolescence: New Perspectives from Brain and Behavioral Science' (2007) 16 Current Directions in Psychological Science 55; Laurence Steinberg, 'A social neuroscience

higher rate of depression and higher propensity toward suicide than their peers.[367] Therefore, it makes sense to not allow underage people to gamble. However, the term 'an underage person' is vague, or at least could be interpreted in various different ways.

It is a fact that young people are legally prohibited from certain goods and services. Products such as alcohol and tobacco are age-restricted in Europe. Thus, national regulators in Europe tend to prevent underage people from consuming age-restricted products, by prohibiting sellers from selling age-restricted products to underage people. Usually, people who are under 18 years of age are considered underage consumers. However, the age of 18 is not a standard threshold for full legal capacity which applies throughout all EU Member States. People under 18 years of age are not legally prohibited from buying (non-age-restricted) products or of bearing responsibilities for certain actions. In that light, it is unclear why a particular date in one's life (mainly one's 18th birthday, but there are exceptions) would formally transform a vulnerable consumer into a non-vulnerable one. However, this argument presents a very general problem in law. Its consideration might prevent legislators from using any age limit in any context. A regulation without generic age limits could present various difficulties and challenges, particularly from the perspective of legal certainty and consistency.

Disagreements among stakeholders (primarily among national regulators) regarding the age threshold for gambling, contribute to the fragmentation of gambling regulations in Europe and confusion as to the legal age for gambling in the EU. In France, Slovenia, Denmark, Finland, Great Britain, Italy and Bulgaria, underage people, as concerns gambling, are those under the age of 18. In 12 of 16 German states, being 18 years old is the required age standard in order for one to be able to gamble, whereas in the other four German states a consumer has to be at least 21 years old (as is the case in Belgium and Lithuania too). The Swedish national legislation determines that a consumer has to be 20 years old in order to be permitted to gamble. In Greece, casinos only permit gambling to consumers aged 23 years or over. However, in some cases, people under the age of 18 are allowed to gamble. In Estonia the threshold age for playing the lottery is 16.[368] Therefore, from a legal perspective, consumers from different EU Member States are treated differently as concerns the age threshold for gambling. However, considering the fact that online gambling is *de facto* a cross-border service, often accessible in states that did not grant a license for the operations of the relevant service providers in their country, compliance with national rules as regards the age threshold age for gambling is becoming very complex.

3.1.2 Age verification mechanisms

In order to buy age-restricted products, some consumers must prove that they are old enough to buy them. By revealing their age, consumers disclose a part of their identity. However, it is often the case that various other data may also be revealed for the purpose of the identification of a consumer's age. When a young consumer tries to buy a bottle of alcohol or purchase tobacco, he/she would be asked to present an identity document (ID), in order to prove that he/she is over the required age limit. Checking the ID provides the checker not only with the consumer's age, but also several other elements of personal data.

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perspective on adolescent risk taking' (2008) 28 Development Review 78; Laurence Steinberg, 'A Dual System Model of Adolescent Risk-Taking' (2010) 52 Developmental Psychobiology 216.

[367] Hardoon and Derevensky (n 358) 272-274.

[368] For more about see: The Federal Association of Child and Youth Protection – BAJ, 'Protection of minors' <http://www.protection-of-minors.eu/en/info.html> accessed 24 November 2017.

A large volume of online gambler-related data is disclosed and processed before, during and after gambling sessions. This data is processed for several reasons – whether that be on account of mandatory legal rules, account management, research, analysis, or promotional and advertising activities.[369] Before being able to gamble, a new customer has to register him/herself. Registration is a necessary step for several purposes. The first one is for forming a personal account. The personal account is needed for the management of all further gambling activities and the online gambler's personal details.[370] Although necessary, registration alone is insufficient for authorizing a customer to gamble. After registration, the customer's personal data has to be verified.[371] Verification is necessary for confirming the disclosed personal data during the registration process. Successful verification confirms the accuracy of the consumer's data and allows him/her to start gambling. In cases where verification is unsuccessful, the consumer's registration shall be suspended. Thus, the registration and verification processes are necessary for investigating whether the customer fulfills the mandatory legal requirements to gamble, including being over the age threshold.

The verification of a customer's data, including data that reveals the customer's age, is complex work. The process of personal data verification has to be carried out in accordance with the rules promoted by the national gambling legislation. Also, privacy and data protection regulations should not be violated. However, considering the possibility providing a cross-border service, the consumer's age verification could be carried out in several different ways:

- Service providers could discard the registration of a customer who is not a citizen of a country that has issued a license for their online gambling service and whose national gambling legislation has to be complied with.
- Service providers could accept a customer, carry out the registration process and the validation of the customer's data in accordance with the national rules of the licensor.
- A third option is available in the form of a double-checking system. Service providers could accept a customer, carry out the registration process and the validation of the customer's data in accordance with the national rules of the licensor, but also conduct a registration and validation procedure following the national rules of the country whose citizenship (or residence permission) a customer indicates is applicable to him in the registration process.

Whereas the first two options are practically implementable, the third one is quite complex and, under certain circumstances, very difficult to apply. There is the possibility that the age threshold for gambling is not the same in the country of where the customer is a citizen as that in the country of the licensor. If the age threshold in the country of the customer is higher than in the country of the licensor, then there are not so many obstacles in the way of carrying out the registration and validation of the customer's data. In the opposite situation, the customer who is under the age threshold of the country of the licensor has to be rejected, due to the impossibility of complying with the national gambling legislation of that country. There is a hypothetical possibility for cooperation among states on matters of

[369] The claim is based on findings obtained from the analysis of 11 online gambling service providers' privacy policies. For more about see the Chapter IV, subsection 3.4.

[370] Bwin, 'Privacy policy'<https://help.bwin.com/en/general-information/registration/why-register> accessed 24 November 2017; BetClick, 'General Terms and Conditions: 4. Opening and managing your account' <https://en.betclic.com/content/tandc> accessed 24 November 2017; Bet at Home, 'General Terms and Conditions: I. Account' <https://www.bet-at-home.com/en/terms#I> accessed 24 November 2017.

[371] EC Recommendation, art 18.

registration and validation of customers' data that would be workable for the provision of cross-border services. However, considering the declared reasons for the current fragmentation of gambling legislations and the *de jure* limitation of the provision of online gambling services within national borders, it would be difficult to find a reason as to why regulators would start developing this kind of cooperation.

The author of this research considers that the quality of the age verification system depends on reliable data, and on the mechanisms used for data processing. Data reliability refers to the accuracy and completeness of data that meets the intended purposes and that is not subject to inappropriate alterations.[372] Therefore, for the firm determination of a consumer's age the most reliable personal data is that which indicate one's personal age by the immutable attributes of personal identity, obtained from birth; attributes that are very difficult to change, or that cannot be changed at all.

The mechanisms for preventing underage people from gambling might be perceived as tools that should ensure a proper, reliable, effective and efficient system of age verification. Properness refers to systems that seek to comply with certain ethical norms, determined standards and mandatory legislation. Therefore, the use of age verification mechanisms serves to decide whether a consumer fulfills the legal standards for becoming a gambler in accordance with the determined regulation. Notwithstanding the various ways available for validating a customer's personal data, the most common is based on the emailing or faxing of a copy of a gambler's documents in order to confirm that they possess those formal identity documents.[373] The verification of a customer's data and the assessment of that data's reliability could involve a third, trustworthy party. In Italy, in order to create a consumer account, potential customers are required to reveal their fiscal code (so called 'codice fiscale'). Every Italian resident must possess an Italian fiscal code. Data verification is carried out by the Agency of Customs and Monopolies, the state agency in charge of, *inter alia*, gambling issues, including the verification of the customer's fiscal code and real-time monitoring of all online gambling winnings, deposits and withdrawal transactions.[374] The interference of this state agency in the verification of online gamblers' personal data might be viewed as a reliable mechanism due to the utilization of the state's infrastructure for such purposes. Notwithstanding the fact that the state is often perceived as a trustworthy agent, the state's effectiveness in various domains could be a matter of contention. Therefore, it is quite desirable that a verification system demonstrates its functional and workable abilities. In Finland, the verification of a gambler's identity is conducted by the TUPAS system. TUPAS is a digital authentication system formed by The Federation of Finnish Financial Services.[375] This system was primarily developed and used for the verification of customers' personal data for financial services in Finland. Nevertheless, due to its proven effectiveness, TUPAS became a reliable instrument for data verification for other services. It is because of its proven effectiveness that it is available for public and industry sectors and their operations,

[372] United States Government Accountability Office, 'Assessing the Reliability of Computer-Processed Data: Section 2: Understanding Data Reliability' (External Version I, July 2009) 4-5, <http://www.gao.gov/assets/80/77213.pdf> accessed 24 November 2017.

[373] This claim is based on an analysis of 11 privacy policies, as well as on the author's hands-on experience within the gambling domain.

[374] Giovanni Carboni, 'History and Trends of Italian Remote Gambling – Part 1/3' (European Gambling Lawyers and Advisors, June 2014) <http://www.egla.eu/w/taxation/history-and-trends-of-italian-remote-gambling-part-12/> accessed 25 November 2017.

[375] For more about The Federation of Finish Financial Services see: Finance Finland, <http://www.finanssiala.fi/en> accessed 25 November 2017.

including for the verification of Finish online gamblers' personal data.[376] Similarly, in Denmark there is the common login solution for public and private services known as NemID.[377] This system of identification for customers is used for logging on to online gambling service provider platforms. Only people who have the Danish CPR number (Danish personal identification number) are allowed to get a NemID.[378] Finally, a verification system has to be efficient. After registration, the verification of data has to be carries out in a period determined by law. Before the date is verified, consumers get temporary accounts and may gamble with certain limitations (e.g. without the possibility of withdrawing funds). After the successful verification of the data, temporal accounts become permanent. If, however, the data cannot be verified, the temporal accounts are suspended and the consumers rejected. Therefore, efficiency relates to effectiveness, which takes into account resources such as time, costs and effort.

The vulnerability of underage people is undisputable, and for that reason, the determination of a customer's age is obligatory. However, there are vulnerable gamblers that do not belong to the category of underage gamblers. Their vulnerability is acquired and is not obvious or easily identifiable. To identify them, a broad spectrum of personal identity attributes that mainly refer to gambling-related behavior has to be observed.

3.2 Digital persona and behavioral analytics

A gambler's age is just part of their identity, the consideration of which might contribute to their protection. Nevertheless, one's personal identity contains attributes that, when analyzed, might reveal various aspects of the individuals behavior, including gambling behavior. Creating a unity from all the features of one's identity and forming a holistic picture of someone's identity is quite difficult to achieve. Observing related aspects of behavior in order to get an insight into certain parts of one's personal identity is a more manageable endeavor. Thus, the observation of certain aspects of behavior might reveal partial personal identities (e.g. features of being a gambler, parent or employee). Moreover, even a complete picture of someone's gambling behavior is difficult to achieved by only analyzing the features of gambling behavior that are recognizable in the online environment. Some elements of online gambling behavior are possible to detect in the online environment, but are insufficient for obtaining a complete picture of an individual's gambling behavior and to determine whether a particular gambler's identity demonstrates any evidence of problem gambling as a medical disorder. Therefore, it might be claimed that both parts of an online gambler's identity, those formed in the online environment and those representations which are given in the physical world, mutually influence each other and may affect an individual's overall gambling behavior.

Concerning the significance of the data generated by online gamblers in the online environment and its usefulness for forming a picture of their personal identities, the following subsection seeks to answer whether online gamblers might be considered in terms of digital personas and sheds light on behavioral analytics tools and their contribution to gambler protection.

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[376] For more about TUPAS system see: Federation of Finnish Financial Services, 'TUPAS identification system, Identification principles' (version2.0c, December 2013) <http://www.finanssiala.fi/maksujenvalitys/dokumentit/TUPAS_identification_principles_v20c.pdf> accessed 25 November 2017.

[377] For more about NemID see: NemID, 'About NemID'<https://www.nemid.nu/dk-en/about_nemid/> accessed 25 November 2017.

[378] Lifeindenmark.dk, 'NemID' <https://lifeindenmark.borger.dk/Pages/nemid.aspx> accessed 25 November 2017.

3.2.1 The digital representation of an online gambler

Creating the concept of the digital persona, Roosendaal defines a digital persona as a "digital representation of a real-world individual, which can be connected to this real-world individual and includes a sufficient amount of (relevant) data to serve, within the context and for the purpose of its use, as a proxy for the individual."[379] If we take into consideration Roosendaal's criteria for determining whether a data set is a digital persona[380], we might come to the conclusion that an online gambler could be perceived as a digital persona. Firstly, there is a related data set that can be observed. Secondly, this data set constitutes a partial identity of an identifiable person. The data set is a digital representation of the real-world individual and a connection between data set and real world individual can be established by identifiers such as name, surname, address and other data that has to be revealed during the registration process and formation of an account. Finally, the data set has a practical application and can be used for decision making purposes that concern the real-world individual. Thus, the significance of the concept of the digital persona is in its reflection of the real-world individual. In the context of online gambling, the digital persona may influence various individual domains, including those that are used for the prevention of problem gambling.

The individualization of particular gambling behavior is account-based. As it was explained, a properly formed account is a guarantee that there is a real-world individual who is legally allowed to gamble. However, the presumption that an online gambler, as a digital person, is always the representation of the particular real-world individual, should not be taken for granted. It may be the case that several people use the same account, which, at the very least, breaches the single-user system of gambling. One person may also be using several different accounts. An online gambler may also make use of the services offered by several different online gambling operators. There is nothing illegal in that. However, service providers can process gambler data and form their representation of their customers using only the data available to them. For that reason, representations about a gambler's behavior may differ from one service provider to another. An online gambler who is a passionate online poker player could be a loyal and regular customer to one service provider, but rarely bet online via another operator. This hypothetical case illustrates how the processing of the data available to service providers regarding their customers might result in the creation of two different sets of representations about gambling behavior (this is the case should we presume that service providers do not exchange their customer data, which is generally the case in light of data protection laws and the business interests of said service providers).

Apart from the possibility of the occurrence of false negative and false positive cases that might influence the accurate representation of a real-world individual in the online environment, it is a fact that playing a game and wagering a stake for online gambling purposes are both detectable through the processing of relevant data. Processing this and several other sets of data could serve the creation of a more accurate representation of someone's behavior in the online environment. Considering that online gambling belongs exclusively to the online environment, it may be presumed that the core of an online gambler's identity is their digital persona. Taking this into consideration, one could claim that an intervention made in order to affect a digital persona might influence the state of the real-world individual represented by that digital persona.

[379] Roosendaal (n 343) 41.
[380] Ibid 65.

3.2.2 Behavioral analytics and gambling behavior

The analysis of consumer behavior and making predictions as to their future acts, are both very common aims in contemporary approaches to marketing and business. These are quite legitimate goals that are useful for discovering and/or creating profitable data. However, data and related knowledge can not only be used for immediate lucrative purposes, but also for other interests that do not necessarily increase corporate wealth. Data professionals seek to create meaningful and reliable data that can be used to understand someone's behavior, including their gambling habits. As previously explained, online gambling service providers process an incremental volume of gambler data[381]. Apart from marketing purposes, the analysis of online gamblers' personal data can also be used for gambler protection purposes, by helping with the timely recognition of (potentially) problematic behavior.

The personal data of online gamblers may be used for behavioral analytic purposes. This type of analysis provides insights into gambler behavior in order to recognize the potential of risky gambling. When searching for certain features of data regarding gambling behavior, data professionals look for signals of problem gambling. Because of this, they also work on data quality and its integration in order to obtain reliable indications of risky gambling. Unlike other potentially addictive behaviors (such as the consumption of tobacco or alcohol for example), data processing regarding online gambling behavior can be done in real-time.[382] Tracking real-time online gambling parameters such as the time and money spent on gambling, frequency of gambling, duration of gambling sessions, type of games played, and reactions to gambling advertisements, helps service providers reach a better understanding of gambling behavior and what influences a gambler's choices, in order to help with the prevention of problem gambling.[383] However, the scope of the risk factors related to problem gambling is not set in stone.[384] Scientific findings demonstrate that a combination of data (e.g. data gathered through interviewing gamblers with real-time data regarding time and money spent on gambling) not only contributes to the recognition of gambling behavior, but also reveals new risk factors for problem gambling.[385]

Notwithstanding several different possible techniques for recognizing potential risky gambling, Griffiths and Whitty consider behavioral analytic tools to be unreliable instruments for diagnosing problem gambling as a medical disorder. Taking into consideration the screening instrument for pathological

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[381] For more about see Chapter IV and feedback loop about profiling (section 4).

[382] *Michael Todd,* Interview with Prof. Mark Griffiths (Sage Publishing, February 2016) <http://connection.sagepub.com/blog/sage-connection/2016/02/11/methods-in-action-behavioral-tracking/> accessed 25 November 2016.

[383] In 2010, at the very beginning of their implementation, Playscan and Observer, behavioral tracking tools developed as responsible gambling tools, used approximately 40 different parameters for analyzing the behavior of gamblers. For more about see: Mark D. Griffiths and Monica Whitty, 'Online behavioral tracking in Internet gambling research: Ethical and methodological issues' (2010) 3 International Journal of Internet Research Ethics 104, 106.

[384] Johansson and others identified 35 risk factors for problematic gambling. For more about see: Agneta Johansson and others, 'Risk factors for problematic gambling: A critical literature review' (2009) 25 Journal of Gambling Studies 67.

[385] Dragicevic et al. developed a three-tier model for assessing risk in gambling behavior by using players' data in order to predict harms related to gambling. This model combines 'exhibited behavior' with 'declared behavior' and 'inferred behavior'. The three-tier model uses multimodal data on gambling behavior in order to get a more accurate prediction of risky gambler behavior. For more about see: Simo Dragicevic and others, 'A Descriptive Analysis of Demographic and Behavioral Data from Internet Gamblers and Those Who Self-exclude from Online Gambling Platforms' (2015) 31 Journal of Gambling Studies 105.

gambling from DSM-4 they realize that some diagnostic criteria related to pathological gambling, such as escaping from reality, concealed involvement, unsocial behavior and ruined relationships/opportunities, cannot be detected by using behavioral tracking tools that process online gambler data. However, they claim that preoccupation with gambling, tolerance and acts of chasing losses can be spotted online.[386] Even though DSM-4 is now obsolete and has been replaced by DSM-5, some of data that applied to the diagnostic criteria from DSM-4 could nevertheless be detected online, whereas some other data is difficult or even impossible to investigate via the application of behavioral tracking tools that operate online. The need to gamble online, increases the amount of money spent in order to achieve the desired excitement, and chasing losses can be detected. However, whether a gambler is irritable when attempting to cut down or stop gambling, has made repeated unsuccessful efforts to control, cut back or stop gambling, is preoccupied with gambling, gambles when feeling distressed and lies to conceal his/her involvement in gambling, borrows money to relieve a desperate financial situation , and, in general, in what state a gambler's social and professional relations are in, are difficult, if not impossible, questions to answer simply via the analysis of data gathered online. However, we should not exclude the possibility that further technological developments may be able to provide insights into data that are currently inaccessible or unreliable. Weyde believes that the future development of artificial intelligence that uses multimodal data, including data collected from connected devices (such as wearables, home appliances, and industrial goods and machines) could be utilized for the detection of emotions, and so bring with it new opportunities for behavioral data analysis.[387]

An additional drawback of behavioral tracking tools is that problem gambling is quite contextual. Games have different structural and situational characteristics and for that reason, modus operandi in data analysis, as well as the implementation of responsible gambling measures, have to be developed contextually rather than generally.[388] Differences also exist among gamblers. Different sub-types of consumers are formed based on the influences of individuals, as well as their cultural, social and national features. Therefore, having additional sets of data available that do not necessarily refer to gambling behavior (e.g. nationality, gender, data regarding personal wealth, family status etc.), could be beneficial for analyzing data that can then be used to explain particular gambling behavior.

Notwithstanding several drawbacks, behavioral analytical techniques have been developing in order to empower the responsible gambling approach. Empirical studies demonstrate that after the detection of risky gambling behavior, proper preventive reactions influence gambling behavior in a way that contributes to the protection of a gambler's health.[389] These tools have served to support the decision-

[386] Griffiths and Whitty (n 383) 112.

[387] BetBuddy and City University London, 'Responsible Gambling Algorithms' (Roundtable on Responsible Gambling Algorithms, City University London, 13 July 2016) <http://www.bet-buddy.com/media/1190/responsible-gambling-algorithms-roundtable-1-august-2016-final.pdf> accessed 25 November 2017.

[388] Richard T.A. Wood, Gillian W. Shorter and Mark D. Griffiths, 'Rating the Suitability of Responsible Gambling Features for Specific Game Types: A Resource for Optimizing Responsible Gambling Strategy' (2014) 25 International Journal of Mental Health Addiction 94.

[389] For more about results of behavioral analytic tools that serve responsible gambling purposes see: David Forsström, Hugo Hesser and Per Carlbring, 'Usage of a Responsible Gambling Tool: A Descriptive Analysis and Latent Class Analysis of User Behavior' (2016) 32 Journal of Gambling Studies 889; Michael Auer and Mark D. Griffiths, 'The use of personalized behavioral feedback for online gamblers: an empirical study' (2015) 6 Frontiers in Psychology <https://doi.org/10.3389/fpsyg.2015.01406> accessed 25 November 2017; Mark D. Griffiths, Richard T.A. Wood, and Jonathan Parke, 'Social Responsibility Tools in Online Gambling: A Survey of Attitudes and Behavior among Internet Gamblers' (2009) 12 CyberPsychology & Behavior 413.

making process (regarding gambling) among those gamblers whose gambling behavior was detected as risky, but not yet identifiable as evidence of problem gambling as a medical disorder. By creating a personalized warning about the gambler's risky gambling, these tools influence and correct the gambler's decision-making process in relation to future gambling.

Analyses of individual gambling behavior are also carried out by third party agents (gambling service providers that use powerful software algorithms to analyze gamblers' data). Nevertheless, the creation of one's personal identity also includes self-perception. Therefore, the gambler's perception regarding his/her gambling behavior is also important for responsible gambling purposes. Despite a lack of self-awareness amongst gamblers in regard to the severity of their gambling behavior (often underestimating the severity)[390], self-exclusion mechanisms are one of the most widespread responsible gambling tools.

3.3 Identification and self-exclusion mechanisms

Online gamblers who think that they spend too much time or money on gambling or are concerned with other aspects of their gambling behavior may use self-exclusion tools to exclude themselves from gambling for a certain period of time.[391] Registration in databases of excluded players should guarantee that gamblers who willingly exclude themselves from gambling are not allowed to gamble for the period of time that they set. In addition, any gambling-related commercial communication shall be interrupted during said period of self-exclusion.

Self-exclusion mechanisms are organized in several different ways. Regulatory arrangements on self-exclusion mechanisms vary from self-regulation to regulations at the international and supranational level. Regulations may limit data processing mechanisms in a manner that affects the accessibility and availability of self-exclusion databases. Thus, for the purposes of this research the presentation of several different organizations which offer self-exclusion mechanisms are distinguished according to two dimensions – horizontal and vertical. Notwithstanding the fact that these dimensions are intertwined, for presentation purposes, the horizontal dimension concerns the connectivity between self-exclusion databases, whereas the vertical dimension concerns the existence of (or lack of) regulations aimed at organizing self-exclusion mechanisms. Taking into consideration both dimensions and their practical variations, a self-exclusion mechanism could be understood as being constructed in the following ways:

- Horizontally disconnected; vertically unregulated
- Horizontally connected; vertically unregulated
- Horizontally connected; vertically regulated
- Horizontally disconnected, vertically regulated

3.3.1 Horizontally disconnected; vertically unregulated

A self-inclusion mechanism that is within a system that is horizontally disconnected and vertically unregulated refers, firstly, to the organization of self-exclusion databases that are not connected (horizontal dimension). Online gambling service providers might organize and maintain self-exclusion databases that are at the disposal of their consumers, but only representatives of the service provider may access those databases. In other words, service provider A is allowed to access its own database of

[390] For more about see Chapter IV, subsection 2.1.

[391] BeGambleAware, 'What is self-exclusion?' <http://www.gambleaware.co.uk/confidential-support-and-advice/self-exclusion> accessed 25 November 2017.

self-excluded gamblers (database A), but is not allowed to access the list of self-excluded gamblers on database B (that is managed by service provider B). Second, in this system the organization of the self-exclusion mechanism is based on self-regulation (vertical dimension). Competent national legislation may (or may not) enshrine the obligation that every licensed service provider ought to organize and maintain a self-exclusion mechanism. However, if a national gambling legislation contains a general obligation, without specified organizational and functional features of a self-exclusion mechanism, this system should not be considered as vertically regulated.

Online gambler registration in this kind of database enables the gambler to exclude themselves from a particular type of game (e.g. a gambler who would like to stop betting, but intends to keep playing casino games), or from all of the games offered by the service provider. The main duty of online gambling service providers, in this regard, is to reliably identify their customers who have willingly excluded themselves from gambling and who have therefore requested to not be allowed to gamble for a determined period of time. However, if a self-excluded gambler would still be able to gamble, several risks may appear. Gamblers may exacerbate their already undesirable gambling behavior and provoke problem gambling. In such a hypothetical case, the liability of service providers (and/or subjects that manage the self-exclusion database) could be claimed, and gamblers may initiate a judicial trial in a competent forum. There are not many court decisions regarding responsibility in relation to the organization and maintenance self-exclusion mechanisms. However, the Calvert vs. William Hill Credit Ltd, decided in the United Kingdom[392], is worth mentioning here.

The claimant, Mr. Calvert, was a compulsive gambler. He was aware of his destructive and uncontrollable gambling behavior, which had led to the loss of a substantial part of his wealth. Recognizing this, he asked William Hill to exclude him for six months from any further gambling. However, the employee that was in charge of managing William Hill's register of self-excluded players did not take all the necessary steps to ensure that the exclusion was completed and functional. Therefore, Mr. Calvert was allowed to keep on gambling. He continued to gamble using William Hill's services and destroyed himself financially by losing almost two million GBP whilst self-excluded. Mr. Calvert initiated a claim against William Hill, claiming negligence in the duty of care to refuse self-excluded players from gambling. He claimed the overall amount of funds lost during the self-exclusion period. What is interesting is that the court decided against Mr. Calvert's claim, finding that William Hill was not responsible for the financial damage incurred by Mr. Calvert. According to the court's findings, Mr. Calvert was already a pathological gambler before he excluded himself from William Hill's services, and could have found many alternative options to gamble and ruin his finances.

It is outside the scope of this research to discuss whether service providers should be held responsible for the losses of their self-excluded players in such a case, and what the arguments supporting the Court's decision in the Calvert case are. What is important is that the Court's decision in this case points out the main weakness of a self-exclusion system that is both horizontally disconnected and vertically unregulated. Self-excluded players in these cases limit themselves from the services provided from only one service provider. But there are still a large number of other available service providers on the market. Hypothetically, if this system of self-exclusion prevailed on the market, then a gambler who would like to fully exclude him/herself from all possible gambling options, would have to initiate a self-exclusion process at all applicable licensed gambling service providers (and to unlicensed service

[392] *Calvert v. William Hill Credit Ltd* [2008] EWCA Civ 1427.

providers too, if these are accessible on the market). Such a self-exclusion system will be more protective if there is a monopoly in the provision of online gambling services or if just a few operators are licensed and accessible.

Despite its drawbacks, the main advantage of this self-exclusion mechanism is based on self-regulation. Self-regulation might enable the broad autonomy of service providers when deciding to accept the registration of gamblers from different national states. Under the presumption that a service provider does not apply discriminatory measures based on the citizenship of consumers or their residence during the registration process, service providers ought to make the self-exclusion mechanism available to all registered online gamblers. Therefore, this system of self-exclusion mechanism is not available exclusively to gamblers with a certain citizenship or residence permits (typical of self-exclusion systems that are vertically regulated)[393], but is likely available to all registered gamblers.

3.3.2 Horizontally connected; vertically unregulated

The second type of self-exclusion mechanisms is based on collaboration between service providers. Namely, service providers are horizontally connected in a way that enables them to exchange data about self-excluded gamblers. Within this system, two sub-systems are recognizable. The first sub-system is featured by a unique database of self-excluded gamblers created and managed by several connected service providers (e.g. affiliated or associated companies). This register contains personal data that should be available to all the connected companies. The second sub-system is composed of several databases of self-excluded players. Each company in the group of connected companies has its own register of self-excluded players that should be available to the other companies. Therefore, any of the connected companies should have access to the others' databases when checking whether a customer is allowed to gamble. In both sub-systems, a gambler might exclude him/herself from a particular type of game or from all gambling services.

In general, both solutions should not only enable self-exclusion from the gambling services offered and provided by one operator, but also from the gambling services offered by the other connected companies. If we presume that a gambler has three different accounts with three different, but connected, online gambling service providers (one each), and that there is one unique database of self-excluded players, it is clear that the gambler's registration in this database is a sufficient step to activate the self-exclusion mechanism for all three connected online gambling service providers. In contrast, if these three connected operators organize and manage three different self-exclusion registers (one register per operator) then a gambler's registration in one database of self-excluded gamblers will be sufficient for the activation of the self-exclusion mechanism, due to the fact that all three service providers are bound by a gambler's self-exclusion regardless of where it is expressed (one registration would be enough).

Cooperation among service providers enables interoperability in relation to self-exclusion data. This factor refers to the horizontal connectivity of a self-exclusion mechanism. The lack of a legislative requirement for the exchange of self-exclusion data reveals that such a system is not regulated vertically. Like the first type of self-exclusion mechanism (that is neither horizontally connected, nor vertically regulated), mandatory legislation might oblige service providers to develop and offer the self-exclusion mechanism as a responsible gambling measure. However, in this case it is still at the service provider's disposal to decide on the form of said mechanism. For that reason, cooperation among

[393] More about in the following subsections.

service providers that ensures a level of interoperability between databases is formed based on agreements made between service providers (and not because of national or international legislation).

Again, the positive side to vertically unregulated self-exclusion systems is that the systems are self-regulated. National gambling legislations might limit cooperation among service providers by obliging them to only exchange gambler data with operators that are formally licensed in their particular national jurisdictions. For this reason, systems that are vertically unregulated enable cooperation and data exchange among service providers which may be licensed in various jurisdictions, or even not licensed at all.

Notwithstanding the interoperability between databases being one of the core characteristics of horizontally connected mechanisms, the vertical dimension in this type of system might present several challenges for the effective functioning of the mechanisms, especially if the databases of self-excluded online gamblers are managed by service providers licensed in different countries. Firstly, data protection legislation in different countries may regulate data processing and the transfer of data in different ways. This could create difficulties concerning issues of legal compliance. Secondly, non-harmonized national legislations might impose different technical standards concerning the registration and identification of gamblers, as well as regarding information security issues. Data might be transferred to national systems with lower security standards and expose said data to information security risks. This issue would be particularly complex if the self-exclusion mechanism is based on several interoperable databases managed by several service providers, each licensed in different national states. Finally, it may also be possible that a particular type of game is legal in one national market, and illegal in another. Therefore, gamblers should at least be aware of the service providers and the types of games that will be inaccessible for the agreed period of self-exclusion and, conversely, which service providers and games will remain accessible.

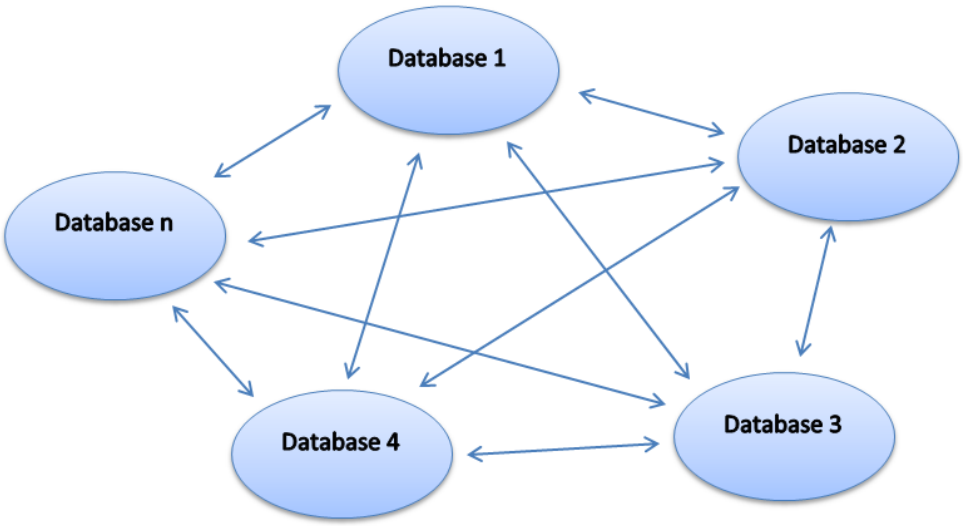

Figure 2 - the schema of a horizontally connected self-exclusion mechanism

3.3.3 Horizontally connected; vertically regulated

A horizontally connected and vertically regulated mechanism of self-exclusion might appear at two different levels. The first concerns vertical regulation at the level of the national state. The second

concerns vertical regulation at the international or supranational level. The main difference concerns the entities (state, international or supranational organization) that create and enforce the applicable regulations. Regardless as to whether we are concerned with vertical regulation at the national, international or supranational level, the main trait of this mechanism is the cooperation of service providers licensed in a state or states that are members of an international or supranational organization. In this type of mechanism, regulations at the national, international or supranational level bind all the relevant service providers to engage in the exchange of data. That means that all of the service providers licensed in a particular state would have to exchange self-exclusion data among themselves (the case with mechanisms organized at the national level), or with service providers licensed in other states that are members of the relevant international or supranational organization.

The interoperability between databases containing self-exclusion data is the main feature of horizontal connectivity. This aspect is not significantly different from the other case of horizontally connected self-exclusion mechanisms. Rather, the difference here concerns the regulatory aspects that are related to the vertical dimension. This is important in relation to organizational aspects concerning the functionality of a vertically regulated self-exclusion mechanism. The organization of data exchange shall be regulated in ways that enable effective database interoperability. In other words, it would be strange to create a mandatory self-exclusion mechanism that is horizontally connected and vertically regulated at the supranational or international level if states, or members of the organization, have no harmonized standards for a technical infrastructure necessary for the proper functioning of the self-exclusion mechanism. For instance, if Italy, Spain, and France decide to harmonize their gambling legislation in order to enable the effective exchange of self-exclusion data, they would, *inter alia*, have to harmonize their procedures and standards for the registration of gamblers. A similar claim might be made in regard to mechanisms organized at the national level – the standards have to be harmonized in order to enable effective data exchange among online gambling service providers.

The current lack of harmonized technical standards might lead to problems related to the registration and verification of consumers' personal data. The main problems will be difficulties related to the accurate identification of self-excluded gamblers and privacy concerns. The registration of consumers in one state might be based on the processing of certain personal data that differs from that in another country. In such a case, certain difficulties in the identification of self-excluded gamblers from different countries might appear. In addition, certain challenging security issues also emerge in a vertically regulated and horizontally connected system of self-exclusion mechanisms. On the one hand, considering that all service providers must be allowed to access the data of all self-excluded players, regardless of where the data is stored, a high level of security measures (that are potentially not harmonized among service providers or entities that manage self-exclusion databases) could hinder effective access. On the other hand, an 'easily accessible' approach would expose databases, potentially making them desirable targets for cybercrime actors.

The main advantage of this type of mechanism is the possibility for gamblers to exclude themselves from the services offered by a large number of online gambling operators. Moreover, by using this mechanism, these exclusions are obligatory for all service providers that are licensed in at least one country (vertical regulation at the level of a state), or even in several countries (international or supranational level). Therefore, from an organizational perspective, service providers have to check all registered self-excluded players in the state, or states, before providing their services. Nevertheless, this solution could be problematic if there are dozens or even thousands of licensed service providers in one

state (e.g. the United Kingdom). However, it would more manageable if there are very few service providers (like in Finland or Poland).

Allowing for the exchange of data only among licensed online gambling service providers presents a challenge of another sort. It is hard to believe that operators whose services are accessible, but who operate without the required national gambling license for the provision of gambling services, would be included in a national self-exclusion mechanism, since it is organized and managed by the state, who is the gambling licensor. In a vertically unregulated self-exclusion mechanism, it is up to service providers to decide upon which operators will be included in the joint self-exclusion system. Therefore, even unlicensed operators might be part of horizontally connected (but vertically unregulated) entities. However, concerning the vertical dimension of a vertically regulated self-exclusion mechanism, it is reasonable to assume that unlicensed operators are formally considered illegal and because of this, are not allowed to be a part of this system.

If we use an example of a self-exclusion mechanism that is regulated at the supranational level and that includes all licensed online gambling service providers from three countries (e.g. Italy, the Netherlands and Portugal), then all of the licensed operators in these countries would have to exchange data about self-excluded players in a way that is regulated at the supranational level. However, say that imaginary operator BetZED, licensed in Italy, is considered a legal online gambling service provider in Italy, if it is not licensed in the Netherlands it might be considered an illegal service provider in the Netherlands. This would be the case too if imaginary operator SORT is licensed in the Netherlands (is a legal service provider in this country), but not in Italy (is, formally, an illegal service provider in Italy). A problem occurs when Bob, who is an Italian resident that is self-excluded from BetZED tries to gamble at SORT. From the perspective of Italian gambling law, SORT it is not allowed to provide gambling services to Bob. Therefore, Bob's registration has to be denied. However, SORT has to carry out its own actions in accordance with Dutch law and might accept Bob, allowing him to register, but not allowing him to gamble due to his self-exclusion from BetZED. Thus, SORT infringes Italian law by registering Bob who is an Italian resident. However, without registering Bob, it would be impossible to check whether Bob is a self-excluded player. Nevertheless, it remains questionable whether Bob will be able to use SORT's services after the expiration of his self-exclusion period. This hypothetical situation depicts a disagreement between *de facto* and *de jure* situations.[394] On the one hand, it is clear that the provision of online gambling services is a cross-border affair that is difficult to constrain within political borders. On the other, national gambling legislations provide regulatory contours for the national gambling market and to ignore them would risk sanctions. Therefore, SORT's acceptance of Bob is illegal from the perspective of Italian gambling law. But despite the illegal registration, enforcing self-exclusion rules might be considered beneficial. This situation might open a Pandora's box of several very complex legal problems and dilemmas, such as whether something that is useful shall be vitiated by something that is illegal; questions as to what is more important – the protection of gamblers (by enforcing the self-exclusion mechanism) or the protection of public interests (the general goal of national law); or questions as to which legal source has greater significance (national law or international and supranational obligations). Thus, a harmonization of national regulations over gambling-related issues should be carried out for the proper functioning of this sort of self-exclusion mechanism.

[394] For more about regulatory landscape of online gambling in EU see Chapter II, section 4.

3.3.4 Horizontally disconnected; vertically regulated

A horizontally disconnected but vertically regulated mechanism is the last form of self-exclusion mechanism of the typology proposed in this thesis. Similar to the previous form, this sort of self-exclusion mechanism could be organized at the national, international or supranational level. The difference here is in the lack of data exchange between service providers. In contrast to the first form (horizontally disconnected and vertically unregulated), however, the vertical regulation of this system does require some form of jurisdiction-wide check as to whether a would-be gambler has self-excluded him/herself. Therefore, instead of relying on a horizontal exchanging of data, the mechanism here can rely on a central database of self-excluded online gamblers that service providers ought to check.

In Spain[395] and Denmark[396] self-exclusion mechanisms are implemented at the national level. These registers are administrated by national gambling authorities and contain data of all the registered gamblers in Spain and Denmark who wish to exclude themselves from gambling online. The main advantage of vertically regulated national self-exclusion mechanisms is the opportunity given to gamblers to exclude themselves from the games offered by all online gambling service providers licensed in the state that administers the self-exclusion mechanism. From an organizational perspective, it might be claimed that those mechanisms that are not horizontally connected are easier to form and operate than horizontally connected ones. Any horizontally connected mechanism is composed of a large number of channels for the exchange of data (each service provider needs to establish communication channels that are necessary for the exchange of self-exclusion data with all the service providers that legally operate in a particular system), whereas in horizontally disconnected mechanisms each service provider must only establish a channel with the central database. Therefore, it might be presumed that horizontally disconnected (but vertically regulated) mechanisms are supposed to be more effective than those that are horizontally connected. In addition, a beneficial aspect to consider with the inclusion of a state authority (or international and supranational organization) may contribute to the gambler's trust in the proper functioning of the self-exclusion mechanism. However, one central database might be more vulnerable to hackers compared to several databases included in horizontally connected self-exclusion systems. Furthermore, taking into account how each service provider has to be able to communicate automatically with the central database, the standards for data exchange have to be established and followed.

Apart from the mechanisms organized at the national level, vertical regulation could entail central databases of self-excluded online gamblers that are operated and managed by a supranational or international body. Taking into consideration how online gamblers can also be offered services by operators licensed in a foreign jurisdiction (an operator licensed in one country but available in others), it seems that an effective supranational or international register of self-excluded gamblers could enable better protection than that possible with any other type of self-exclusion mechanism. However, its practical implementation is quite difficult and it will probably never see the light of day. Because of both political and regulatory issues in the EU, there is no international or supranational organization that would be in charge of this task. Nor is it likely that such an organization would be established in the EU

[395] For more about Spanish national register of self-excluded gamblers see: Directorate General for the Regulation of Gambling, 'General Register of Gaming Access Bans (RGIAJ)' <http://www.ordenacionjuego.es/en/rgiaj> accessed on 25 November 2017.

[396] For more about Danish register of self-excluded gamblers see: Spillemyndigheden, 'Rofus – Exclusion from Gambling' <https://spillemyndigheden.dk/en/rofus-exclusion-gambling> accessed 25 November 2017.

in the near future. It is hard to believe that EU Member States will create an international or supranational organization in charge of gambling issues whose regulations will have supremacy over national rules. Moreover, many sources of EU Law are not applicable to gambling issues in the EU due to strong national desires to regulate gambling affairs exclusively at the national level.[397]

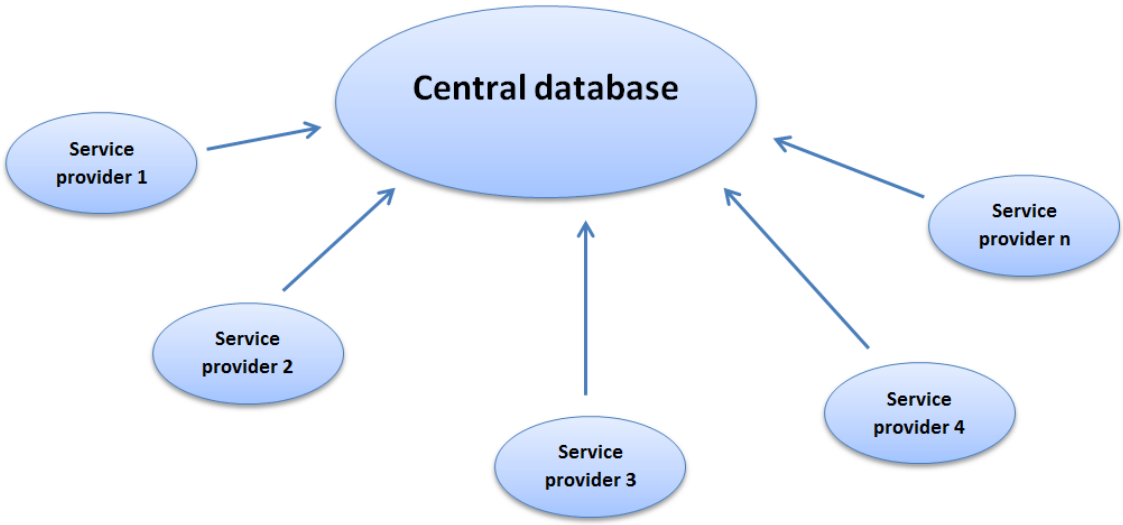

Figure 3 - the schema of horizontally disconnected (but vertically regulated) self-exclusion mechanism

3.4 Concluding points on the identification of gamblers for protective purposes

The identification of gamblers as a process based on the processing of personal data in order to reveal various individual characteristics, including features such as an individual's gambling behavior, has a very important function for the implementation of responsible gambling. The study presented three very important mechanisms for a responsible gambling approach. In the context of the presented mechanisms, it could be argued that the identities of gamblers are never completely reliable, or even accurate. They are formed through instances of data processing that stem from complex interactions between service providers and online gamblers. The verification of a gambler's age is based on the processing of personal data that is supposed to be accurate. Revealing someone's gambling behavior by behavioral analytics might be problematic if the available data does not provide information that matches the real state of the behavior. Finally, data regarding self-exclusion from gambling depends on how the gambler perceives their gambling behavior. Thus, this data cannot be a reliable indicator of problem gambling. Gamblers are laymen, parties without the skills and knowledge necessary to recognize patterns of problem gambling. Nevertheless, their subjective feelings as well as wishes should not be ignored.

Notwithstanding the vulnerabilities of gambler identification systems, empirical scientific findings testify that they are necessary and useful for the protection of gamblers. As the above discussion shows, the potential for improvement exists through the extension of the scope of available data and interoperability between databases. This potential will be further explored in Chapter VII.

[397] For more about see the Chapter II, section 4.

4 Synthesis

Behind any account created for gambling purposes there is a real world individual. The creation of an online gambler's account requires the collection and processing of personal data that refers to the real-world individual. Mandatory national gambling legislation will impose obligations for the registration and verification of personal data. Because of this, certain attributes are attached to an online gambler's identity (e.g. age, nationality, given name and surname). Gambling also generates new data, the subsequent collection and processing of which is undertaken by online gambling service providers (or by third parties on behalf of online gambling service providers). Data regarding online gamblers' personal preferences toward specific types of games, funds and time spent gambling, frequency of gambling, purchases of non-gambling related items, and enjoyment of other types of entertainment, emerge as consequences of a gambler's activities. This data might be utilized for the aggregation of gambler data and their classification into various categories. Some categories are composed of risky gamblers who should be warned about their gambling behavior, whereas others may be composed of profiled gamblers that should be supplied with a personalized advertising appeal. Such categorization and aggregation of gamblers is under the control of online gambling service providers.

Real-world individuals are also able to contribute to the projection of their representations. They set up their accounts by, *inter alia*, creating passwords and usernames, uploading profile photos, and leaving their contact details and basic info about themselves, as well as information about their lifestyle, online. In addition, the production of data can be a mixture of decisions made by real-world individuals and their activities on the one side, and the operations of service providers on the other. Online gambling service providers can process gambler data in order to recognize patterns of risky gambling and warn a gambler about it. However, after said warning, it is the gambler that will have to decide about his/her next steps and, in a certain sense, shape their own gambling behavior. But so too may personalized advertising be sent to a gambler and influence his/her gambling behavior. Add-response reactions will generate new data. Thus, it could be said that various data sources are used for building online gambler identities. Apart from the diversity of data sources, the scope of collected data, and ways of processing data, as well as the purposes that data processing may serve, all shape the contours of an online gambler's identity, which usually includes several different representations.

The assumption that gambler data flows contribute to the protection of gamblers could, therefore, be asserted. A scenario in which all gambler-related data is available to all service providers and professionals whose job it is to recognize problem gamblers, would probably produce helpful effects in the prevention of problem gambling. The accuracy and reliability of the detection of problem gambling in the online environment will be proportional to the scope of the processed data from gamblers. The digital representation of a problem gambler is not concerned about who the real-world individual is, but about what the real-world individual does when gambling online. In other words, the quantity of personal data retrieved from gamblers will be proportional to the quality of the digital representation that is useful for the protection of gamblers. Therefore, data interoperability plays a crucial function. However, collecting and processing as much personal data as possible, so to then process it, creates various privacy-related risks. The challenge, therefore, is to find ways to combine both perspectives, or in any case, to find ways for optimizing gambler protection insofar as this is compatible with the minimum requirements of data protection. This challenge will be taken up in the second part of this research.

2nd part – Responsible gambling strategies for processing gamblers' data

Chapter VI: Hoepman's privacy design strategies

1 Introduction

With a view to answering the general research question, this chapter focuses on strategies for the processing of online gamblers' personal data. This chapter contains an introduction to the concept of personal data processing strategies, whose application contribute to the protection of privacy and personal data protection. Privacy preserving strategies have been selected as a crucial aspect in respect to the processing of online gamblers' personal data, due to the hypothesis established in this research that the processing of online gamblers' personal data is relevant for the provocation/prevention of problem gambling.

The chapter aims to shed light on strategies for processing online gamblers' personal data and their relation to policies and tactics. The explanation of these relations should clarify the reasons why the research focuses on personal data processing strategies, how these strategies interrelate with more general plans and tendencies in the gambling domain (e.g. with leading policies), as well as unpack concrete measures for achieving strategy goals. Therefore, the overall purpose of this chapter is to outline the concept of strategies for the processing of online gamblers' personal data and to position them among the relevant related concepts. In this way, the chapter explains how their implementation contributes to answering the central research question. The chapter presents the work of Jaap-Henk Hoepman, and his privacy design strategies, as a source of inspiration for the development of strategies for the processing of online gamblers' personal data.

This chapter is divided into three parts. The first part deals with a brief explanation as to the general notion of strategy, shedding light on the reasons for the creation of strategies, as well as for their implementation and structure. The second part of the chapter provides some details about Hoempan's work on the development of privacy design strategies, presenting an in-depth explanation of his strategies and the reasons why they have been selected for the purpose of this research. The third part of the chapter then explains the importance of Hoepman's work in the context of the present research and explains which part of his work is particularly applicable and why.

2 The notion of strategy and its role in the context of the present research

The multifaceted meaning of the word strategy has been utilized for numerous purposes and in various settings. The origin of the word strategy can be traced to the Greek word *strategos*, which was the name of an elected general with a political function in ancient Athens.[398] In fact, strategy is most often used in the context of the science and art of military activities, especially in regard to the commanding of

[398] Eliot A. Cohen, 'Strategy', *Encyclopedia Britannica* <https://www.britannica.com/topic/strategy-military> accessed 17 December 2017.

military troops.[399] Explaining the general notion of strategy, whilst focusing on the context of war, Carl von Clausewitz emphasizes that "strategy is the employment of the battle to gain the end of the war."[400] In this respect, a strategy would contain plans for military campaigns and regulate combat. Von Clausewitz adds that a strategy for military purposes is based on propositions, and for that reason, some of the plans may experience difficulties in practice. Moreover, some arrangements cannot be designed down to the smallest details. They have to stay general until they develop their fully operative shape as an outcome of the development of a situation.[401] Von Clausewitz`s observation of military strategy reveals the concept as a general means composed of several sectorial but interacted plans, whose execution lead to a common goal. A strategy has a certain level of abstraction, and its particulars depend on the particular context. Therefore, it might be said that the individual elements of a strategy, as well as the situations created by the environment and circumstances to which a strategy it is meant to be applied, are all important factors for the development and implementation of any strategy. Placing particular attention to the preparation of war as the primary military strategy, Von Clausewitz points out that a military strategy refers to the planning of actions of war for reaching military goals and how to achieve them via the available means one has in the situation at hand.[402]

From this, we may deduce that strategies are inherently concerned with meaningful relations between means and ends. The bridging of means and ends could be indicated by another military-related term - tactics. Similar to the notion of strategy, this term goes beyond the military context. A standard concern for both terms is the planning of how to reach a particular point or end state.[403] Therefore, they serve to achieve a certain goal (e.g. to bridge the gap between two different points) via the adoption of certain means. As to the different points which need to be bridged, the first refers to an undesirable state composed of a problem or group of challenges that need to be solved. The second is the desired end state that is reached after solving the problem. Notwithstanding their similarity, the distinction between strategies and tactics can be indicated by several factors. The relationship between strategies and tactics might be perceived as a relationship between the general and the specific. Tactics are usually part of a strategy, and for that reason, their realization contributes to the overall strategic goal. Tactics might serve to achieve an aim that is necessary, but may be insufficient for the achievement of the overall strategic goal. Thus, the implementation of new tactics may contribute towards achieving said goal. In some cases, the application of one out of several proposed tactics could be sufficient for reaching a strategic goal; there may exist several tactics within a strategy. In order to achieve the goal of a strategy, some of the proposed tactics have to be realized. In certain cases, several proposed tactics have to be realized cumulatively to achieve the goal. For these reasons, the level of abstraction among strategies is higher than that of tactics, which are supposed to be more detail oriented. It could, therefore, be said that tactics may bring concrete solutions for parts of a problem, whereas strategies promote the solution of the problem as a whole.

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[399] Merriam-Webster Online English Language Dictionary defines strategy as "the science and art of military command exercised to meet the enemy in combat under advantageous conditions", 'strategy, n' (*Merriam-Webster*, December 2017) <https://www.merriam-webster.com/dictionary/strategy> 17 December 2017.

[400] Carl von Clausewitz, *On War,* Book 3, Chapter 1 Strategy <https://www.clausewitz.com/readings/OnWar1873/BK3ch01.html#a> accessed 17 December 2017.

[401] Ibid.

[402] Ibid.

[403] Cohen (n 398).

There is no single guideline as to how to create a strategy. However, all strategies (up to a certain point) are problem-solving in their aim. Therefore, the first step in creating a strategy is concerned with the detection of the problem and its analysis. In the context of the provision of gambling service, the most noticeable problem is that gambling bears various risks and that because of this, online gamblers exposes themselves to gambling-related risks. However, this is a very general observation of the problem, which is difficult to couple with a unique strategy. As this research has demonstrated, commercial communication for gambling purposes should be considered a gambling-related risk, and, accordingly, the processing of gamblers' personal data for commercial communication purposes should also be considered as a risk factor. In contrast, data processing used for identification purposes contributes to online gambler protection. Therefore, the need to protect players from gambling-related risks imposes the creation of an appropriate strategy in relation to both identification and commercial communication. However, since a strategy whose primary goal would be to stimulate the consumption of gambling through effective commercial communication, including behavioral advertising based on personal data that has been collected through identification processes, is also logically justified from a business perspective, the strategy cannot, in itself, be a goal. This indicates that implementable strategies shall derive their legitimacy from more general sources, such as policies.

2.1 Strategy: Between policy and tactic(s)

Strategy is not an isolated phenomenon. As Von Clausewitz noticed, war is not an "act of blind passion, but is dominated over by political object."[404] One could claim that any strategy can be viewed as something that serves the realization of a policy. Regarding the context of online gambling in the European Union, however, the determination of the relevant policy which could be used as a landmark for the development of strategies for various domains of online gambling is extremely complicated. This is mainly due to the lack of unified and/or harmonized national gambling policies. Furthermore, gambling activities might impact (or be affected by) health and youth policies. Therefore, in this research, the scientific conceptual framework of responsible gambling, which refers to a set of general principles, policies, and practices designed to prevent gambling-related harms, has been selected as a guiding policy.

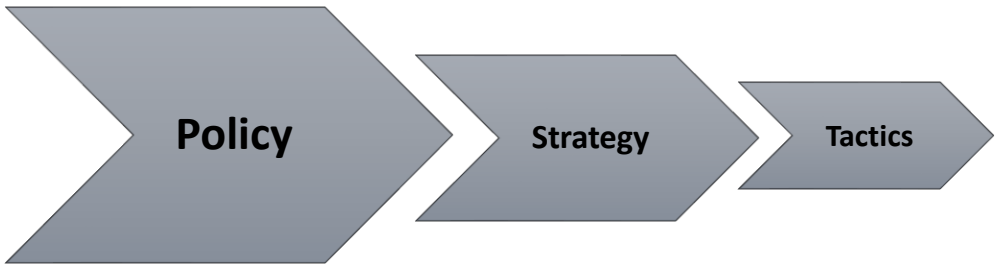

Figure 3 – The relation between policy, strategy, and tactics: From general to specific

Considering their importance, policies could claim a higher position in respect to strategies and tactics. In terms of quantity, a policy might have one goal, a handful of strategies, and many tactics. In other

[404] Roger Parkinson, *Clausewitz: A Biography* (Cooper Square Press 2002) 315.

words, to achieve a policy goal, several strategies may have to be developed and realized, and several tactics employed in the pursuit of each strategy.

This research particularly focuses on strategies for the processing of online gamblers' personal data in order to explain how personal data processing might affect the prevention/provocation of problem gambling. However, strategies for the processing of personal data are affected by various policies that are not primarily concerned with the protection of online gamblers. Because of this, the research takes into consideration relevant regulations (e.g. gambling regulations and data protection regulations), as well as practice (made by online gambling service providers) and theory (e.g. theoretical proposals for strategy design) in order to create strategies for the procesing of gamblers' personal data. However, the primary goal of this research is not to propose one sole approach that seeks to solve the concrete problem of online gambler protection. This study demonstrates how one sort of protection (personal data protection) influences another kind of protection (gambler protection), and how conflicts between the two need to be resolved for the achievement of an overall policy goal of responsible gambling. This methodological approach requires the formulation of one or more strategies in relation to data processing that can lead toward a better protection of gamblers, while taking data protection into account. The strategies developed in the context of 'privacy by design' provide a useful starting point for formulating such strategies.

2.2 Privacy by design

Privacy by design is a concept drawn up to deal with the increasing trend of privacy encroachment provoked by the development and application of new technologies. Privacy by design has been conceived as a contributory response to increasing concerns related to the protection of personal privacy. Therefore, it is supposed to be a *modus operandi* for organizations and entities that process personal data. It is not only a voluntary tool but a legal requirement, set by the requirements of 'data protection by design' and 'by default', set by the GDPR.[405] Notwithstanding the variations amongst conceptualizations of privacy by design (mainly as a consequence of the constant development of technology and various interpretations of the concept – e.g. legal, philosophical, technical), both conceptual contours of privacy by design and its principles are determinable.[406]

The principles of privacy by design are meaningfully created and explained by former Ontarian Information and Privacy Commissioner, Ann Cavoukian. She has described the most important features of the concept and has outlined its main principles.[407] Privacy by design refers to a scope of proactive, rather than reactive, measures. They primarily serve to anticipate and prevent the occurrence of privacy-invasive activities. Therefore, personal data should be automatically protected in any IT system or business, by default. In other words, if an individual does not change the default settings for personal data protection, they are going to stay protected. The next feature refers to privacy by design as an integral part embedded into an IT system or business. The full functionality of privacy by design should follow a positive-sum game ('win-win') and should not be based on a zero-sum approach "where

[405] GDPR, recital 78, art 25.

[406] Ugo Pagallo, 'On the Principle of Privacy by Design and its Limits: Technology, Ethics and the Rule of Law' in: Serge Gutwirth and others (eds), *European Data Protection: In Good Health?* (Springer 2012) 331-346; Seda Gurses, Carmela Troncoso, and Claudia Diaz, 'Engineering Privacy by Design' (K.U. Leuven/IBBT, ESAT/SCD-COSIC) <https://www.esat.kuleuven.be/cosic/publications/article-1542.pdf> accessed 17 December 2017.

[407] Ann Cavoukian, 'Privacy by design: The definitive workshop: A foreword by Ann Cavoukian' (2010) 3 Identity in the Information Society 247.

unnecessary trade-offs are made."[408] Also, the 'cradle-to-grave' approach imposes lifecycle management for a particular project, so to promptly ensure personal data protection and privacy safeguards from the moment personal data is collected until the erasure of that data. Another feature is transparency. Regardless of the technological or business practices involved in a particular project, the design of data protection mechanisms should be visible and transparent to the relevant stakeholders. Finally, privacy by design promotes a user-friendly approach. Its overall architecture and operation should be created "to keep the interests of the individual uppermost by offering such measures as strong privacy defaults, appropriate notice, and empowering user-friendly options".[409]

The privacy by design principles formed by Cavoukian are well developed, and their general character allows them to be applied in various contexts, including ours, for the creation of strategies for the processing of online gamblers' personal data. However, it is important to remember that privacy by design principles remain general and do not provide guidance as to how to 'do' privacy by design. For that reason, this research focuses on the work of Jaap-Henk Hoepman, which makes privacy by design less abstract and fit for practice.

3 Jaap-Henk Hoepman's privacy design strategies

One of the pioneers in implementing an interdisciplinary methodology for the development of privacy protective strategies is Jaap-Henk Hoepman. Hoepman is associate professor of privacy enhancing protocols and privacy by design in Nijmegen. He works on the implementation of data protection principles that are imposed by law into the technical design of products and services. His work aims to contribute to the development of privacy by design by proposing more concrete ways for their implementation. In 2012, he published a paper in which he proposed privacy design strategies to support privacy by design during technological development, particularly in the process of software development.[410] Since their publication, Hoepman's privacy design strategies have been analyzed and developed by follow-up papers created by Colesky, Hoepman and Hillen.[411]

By combining legal principles, organizational factors and technological aspects, Hoepman has significantly contributed toward preservation or privacy. His privacy design strategies present a convergence of knowledge from different scientific disciplines (primarily law and technology) and seek to assist in the protection of personal privacy. The privacy design strategies are not fine-grained; they are abstract. Nevertheless, they illustrate how legal principles could be transformed into the technological and organizational processes necessary for supporting personal data protection. Therefore, these strategies might be considered as conceptual frameworks for the protection of personal privacy via personal data protection during technological processes. Considering their level of abstraction on the one hand and their concrete approach for protection of personal privacy during technological and organizational processes on the other, these strategies are very suitable to contextualization. It is for these reasons that they have been selected for the purpose of this research.

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[408] Ibid 250.

[409] Ibid.

[410] Jaap-Henk Hoepman, 'Privacy Design Strategies' (The Privacy Law Scholars Conference (PLSC) 2013) <https://arxiv.org/abs/1210.6621v2> accessed 17 December 2017.

[411] Michael Colesky, Jaap-Henk Hoepman and Christiaan Hillen, 'A Critical Analysis of Privacy Design Strategies' (Security and Privacy Workshops (SPW) 2016) <https://www.cs.ru.nl/J.H.Hoepman/publications/iwpe-privacy-strategies.pdf> accessed 17 December 2017.

3.1 The structure of Hoepman's privacy design strategies

Hoepman's privacy design strategies were primarily created as an integral part of the privacy by design approach within the overall software development cycle. Hoepman outlines a software development cycle by presenting a feedback loop composed of six subsequent phases: concept development, analysis, design, implementation, testing, and evaluation.[412] The first node in this feedback loop is devoted to the development of software from the conceptual (abstract) perspective. The second phase is an analytical phase (the second node). These stages serve for outlining and analyzing the requirements, purposes, and expectations regarding the software that has to be created. They are preconditions for the design of the software (the third node in which the software code is created). When the software is designed, a threefold process of implementation–testing–evaluation (the three following nodes) has to be carried out. After evaluation, the overall software development cycle is refined and starts again.

Analyzing the role of privacy by design in the software development cycle, Hoepman particularly focuses on the first four phases of the cycle.[413] Privacy by design is a complex, interdisciplinary process that among other things may include legal, business, organizational and technological analyses and processes. One of the critical processes within privacy by design that help with the identification and minimization of privacy risks in new projects and policies is known as a privacy impact assessment.[414] A privacy impact assessment carries weight for recognizing privacy-adverse activities, as well as for evaluating of their effects. This process has distinct goals that need to be achieved in several different phases. However, the creation, implementation, and improvement of privacy by design pervade all the stages of a project's lifecycle. Considering that privacy by design has to be included from the very beginning, from planning a project up until its very last stage of realization, it is an inseparable part of every node in the feedback loop of a software development cycle. However, at the very beginning of the cycle, the most obvious privacy-related risk factors shall be identified and evaluated. Thus, privacy impact assessments should be exercised during the early phases of a software development cycle. Nevertheless, it might be expected that more refined risks will be detected in the latter stages (e.g. during or after the software implementation and/or testing).

[412] Hoepman (n 410) 2.
[413] Ibid.
[414] Information Commissioner's Office, 'Conducting Privacy Impact Assessment: Code of Practice' (Version 1.0. 2014), 5 < https://ico.org.uk/media/for-organisations/documents/1595/pia-code-of-practice.pdf> accessed 17 December 2017.

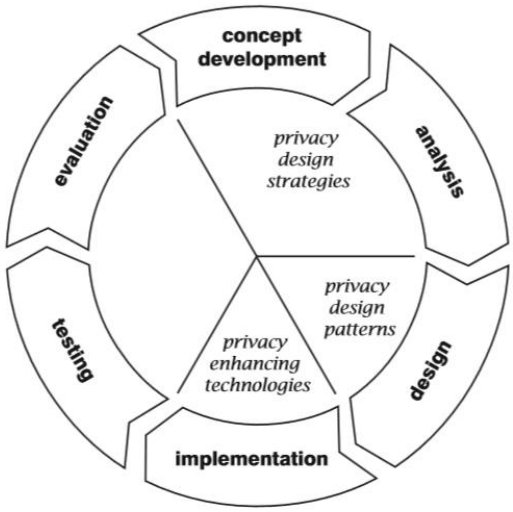

Figure 5 - The software development cycle and its relationship with strategies, patterns, and technologies. Source: Hoepman, 'Privacy Design Strategies'.

Hoepman defines a design strategy as "a fundamental approach to achieve a certain design goal that has certain properties that allow it to be distinguished from other approaches that achieve the same goal".[415] However, Colesky, Hoepman and Hillen have developed Hoepman's privacy design strategies, defining them, *inter alia*, as "a distinct architectural goal in privacy by design to achieve a certain level of privacy protection".[416] It seems that this definition emphasizes the role of privacy design strategies ('a distinct architectural goal') in a privacy by design approach and their primary aim ('to achieve a certain level of privacy protection'). Hoepman's initial definition regards the structural design as a cornerstone that serves to distinguish between the different approaches created to achieve a certain goal.

A further analysis of Hoepman's work reveals the important roles and interesting relations between privacy design strategies, privacy design patterns and privacy enhancing technologies. He distinguishes between them in a considerably abstract, but still functional manner. Whilst discussing design patterns, Hoepman builds upon the explanation of design patterns by Buschmann and others. According to this explanation, a design pattern "provides a scheme for refining the subsystems or components of a software system, or the relationships between them. It describes a commonly recurring structure of communicating components that solves a general design problem within a particular context."[417] In addition to design patterns, privacy enhancing technologies are explained as "a system of ICT measures protecting informational privacy by eliminating or minimizing personal data thereby preventing unnecessary or the unwanted processing of personal data, without the loss of the functionality of the information system."[418] The distinction between a privacy design pattern and privacy enhancing technologies is based around their level of abstraction. A design pattern refers to a structure that aims to solve a problem within a particular context, whereas privacy enhancing technologies are concrete technologies that can be employed to implement design patters and achieve privacy protection goals in concrete cases.

[415] Hoepman (n 410) 3.
[416] Colesky, Hoepman and Hillen (n 411) 2.
[417] Hoepman (n 410) 3.
[418] Ibid 4.

At first glance, it could seem as if Hoepman perceived the implementation of privacy design patterns as coming after the determination of privacy design strategies, and privacy enhancing technologies as coming after privacy design patterns (see the feedback loop above). However, this claim should be approached with caution. One could argue that privacy design patterns and privacy enhancing technologies derive from privacy design strategies. Nevertheless, Hoepman developed his work by presenting a process within a software development cycle as demonstrated in the feedback loop. Therefore, all processes within the feedback loop influence each other. Therefore, privacy design patterns and privacy enhancing technologies do not only derive from privacy design strategies, but also affect the shape of said strategies in every subsequent round of the loop.

Hoepman focused on the structure of privacy design strategies, positioning them among a similar process during the software development cycle. Colesky, Hoepman and Hillen add relevant tactics for any of the proposed strategies. They define tactics as an "approach to privacy by design which contributes to the goal of an overarching privacy design strategy."[419] Based on the literature review, Colesky, Hoepman and Hillen extract and describe tactics as practical ways (translatable to technological tools) for the realization of privacy strategies.[420] These works supplement each other, and this relation was brought into existence by the implementation of different research methodology. Hoepman's initial work focused more on the organizational aspects of strategies (design patterns) that should be used for the creation of privacy enhancing technologies. Colesky, Hoepman and Hillen propose a set of tactics per strategy that are more concrete than patterns (in terms of their organizational aspects), but that cannot be considered privacy enhancing technologies due to the higher level of abstraction they carry compared to privacy enhancing technologies.

The relation between strategies, tactics and patterns could be explained by following the illustration - Minimization is a strategy whose essential goal is to limit the use of personal data and to enable the processing of data within the bounds of an agreed set of processing purposes. Relevant tactics that may serve this strategy could be, *inter alia*, those of selecting and destroying data. Thus, the data controller that implements a minimization strategy would carefully select from the collected data and process only that data which is necessary for the agreed purposes. All other collected data shall be destroyed. In order to arrange this kind of practice, data controllers can create internal documents that oblige all data processors that process data on behalf of the controller to implement relevant tactics. The creation of the documents and the setting up of the management system that will monitor the practice of implementing said tactics could be perceived as patterns.

This observation of Hoepman's privacy design strategies leads us to the conclusion that privacy design strategies, patterns, and enhancing technologies, as well as tactics, could be perceived as a coalition of parts that form an essential unity for the protection of privacy. Whereas privacy patterns outline an internal structure for strategy, defining its communicating components and their responsibilities, tactics are composed of concrete actions. However, tactics should correlate with a proper pattern. Otherwise, their random implementation could be useless. Therefore, tactics shall be enforced through determined privacy patterns to achieve the goals of privacy strategies. As a result, privacy enhancing technology could be created and implemented.

[419] Colesky, Hoepman and Hillen (n 411) 2.
[420] Ibid.

3.2 Eight privacy design strategies

In creating his privacy design strategies, Hoepman takes several methodological steps. Firstly, he analyses data protection standards and points out several principles that have to be respected (or at least are supposed to be respected). He not only observes the legal, but also the technical, organizational and procedural features of privacy protection in order to create a 'natural starting point' for creating privacy preserving strategies.[421] He takes into consideration the OECD privacy guidelines,[422] the US fair information practices,[423] the EU Data Protection Directive and the ISO 29100 Privacy Framework[424], to extract 10 common privacy protection principles. Summarizing the requirements enshrined in these documents, Hoepman derives the following principles:

- Purpose limitation (comprising both the specification of the purpose and limiting the use of data to the stated purpose)
- Data minimization
- Data quality
- Transparency (Openness in OECD terms)
- Data subject rights (in terms of consent, and the right to view, erase, and rectify personal data)
- The right to be forgotten
- Adequate protection (Security Safeguards in OECD terms)
- Data portability
- Data breach notifications
- Accountability and (provable) compliance[425]

The second step concerns the determination of activities that violate privacy. Hoepman considers information storage and information flow as processes within which privacy violations may occur. Notwithstanding a broad scope of operations that refer to personal data processing, data storage and data flow are the most common ways of data processing, and therefore warrant particular focus. Hoepman notices that in practice, IT systems are often hybrid systems and include both data storage and data flow.[426] Nevertheless, he also discerns that due to the limited storage capacity of database systems, data flow is necessary for purposeful processing.[427] Thus, data storage and data flow are viewed as the most common ways of data processing.

In the third step, Hoepman applies the 10 extracted privacy principles on data storage and data flow systems. Firstly, he considers information storage systems. He views databases as tables with rows and columns. Every table represents a set of attributes concerning the individual, with every column containing a fixed set of attributes. Every newly added row in a table is about new individuals and their records. The table 2, presented below, is an example of a database that contains the address details of

[421] Hoepman (n 410) 6.
[422] Organisation of Economic Co-Operation and Development, 'OECD guidelines on the protection of privacy and transborder flows of personal data' (1980).
[423] US Federal Trade Commission, 'Privacy online: Fair information practices in the electronic marketplace: A report to congress' (2000).
[424] International Organization for Standardization, 'ISO/IEC 29100: Information technology – Security techniques – Privacy framework' (edition 1, 2011-12).
[425] Hoepman (n 410) 6.
[426] Ibid 7.
[427] Ibid 6-7.

citizens' permanent residences. The shaded row in the table contains personal data about the individuals' home address, whereas the shaded column contains their postal codes. Therefore, the data might be observed at the individual level (observation of a row) or at the aggregated level (focusing on a column), or both.

Table 2 - A database example composed of rows and columns

Addresses of citizens' permanent residences (city: Nis, country: Serbia)				
Personal name, surname	Street name	Municipality	Postal code	City
…	…	…	…	…
Dusan, Pavlovic	Karpatska 16a	Pantelej	18106	Nis
Olgica, Cvetkovic	Pariske Komune 9	Medijana	18105	Nis
Bratislav, Djuric	Zmaja od Nocaja 23	Palilula	18106	Nis
Slobodan, Micic	Jovana Nedina	Crveni Krst	18209	Nis
…	…	…	…	…

Hoepman finds that the collection of personal data "should be proportional to the purpose for which it is collected"[428]. He adds that the purpose "should not be achievable through other, less invasive means" and for that reason, data collection should be minimized.[429] Therefore, the rows in a database, which correspond to each and every individual, should not be stored if it is not necessary. If data is stored, then it should correspond to the purpose (e.g. if the data presented in the shaded row is collected for a census and subsequent statistical analysis, it should not be used for marketing purposes). The legitimate limitation of data utilization is also based on data separation. Thus, data collected for one purpose should be stored separately from data stored for another purpose, and it should not be easy to link them (e.g. the data about individuals presented in the table above should be stored separately from the individuals' health records if there is no legitimate purpose for linking said data). Access to data should be limited and accessible only to authorized subjects, and should be properly protected, and more specifically, properly hidden. Data subjects have to be informed about the facts regarding the processing of data that is related to them, as well able to request the modification of said data. Giving control to an individual over the data produced about him/her is at the core of informational self-determination. Finally, data processing should be carried out in accordance with relevant privacy policies and mandatory data protection law. Concerning EU Data Protection Law, data processors have to be able to demonstrate that their actions comply with the law.

[428] Hoepman (n 410) 7.
[429] Ibid.

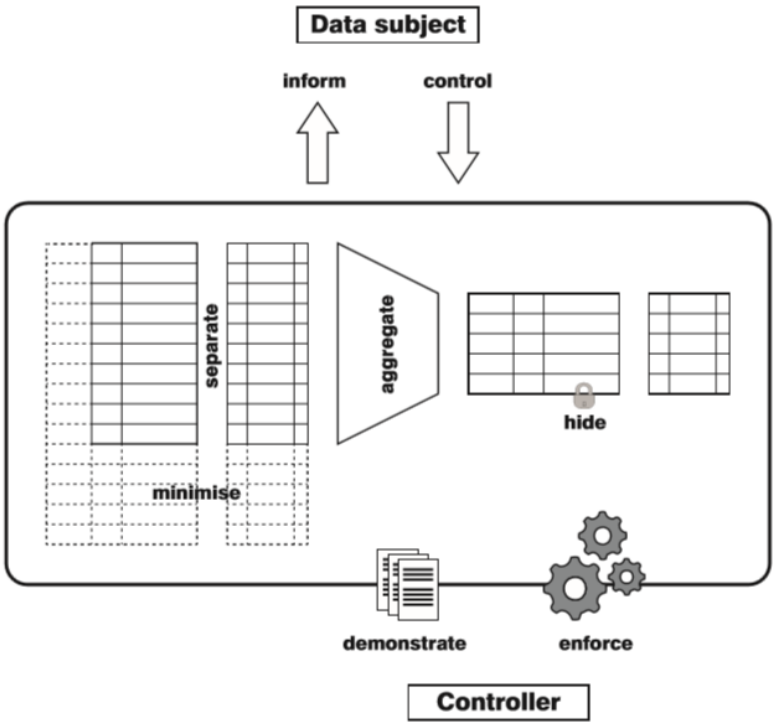

Figure 6 - The database metaphor of eight privacy design strategies
Source: Hoepman, 'Privacy Design Strategies'.

Considering the application of privacy principles to information flow systems, Hoepman proposes that data minimization ought to be exerted in a way where only selected data is processed, and other data is thrown away. The separation of data needs to be done by splitting a data stream[430] into several parts, which are later processed at different locations. The further combining and compressing of data streams corresponds to the process of data aggregation. Data transmission has to be encrypted or protected in another manner, to ensure that the data is hidden. The following phases are mainly based on compliance with mandatory legal principles that do not differ from those in the information storage system.

[430] Whereas data streaming could be defined as a process of transmission, the term data stream refers to a set of digital signals that serve to transmit content within a network. For more about data stream see Technopedia, 'Data stream' <https://www.techopedia.com/definition/6757/data-stream> accessed 17 December 2017; and for more about data streaming see Technopedia, 'Data streaming' <https://www.techopedia.com/definition/13604/data-streaming> accessed 17 December 2017.

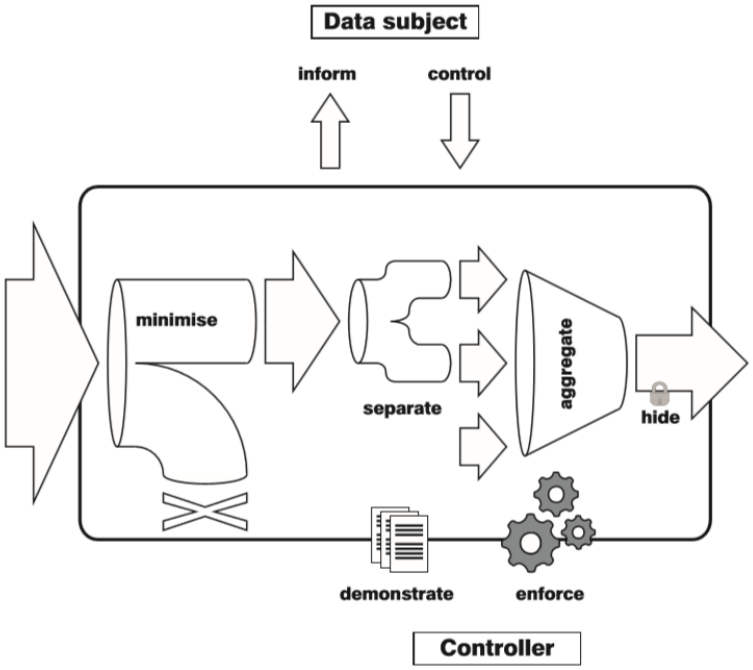

Figure 7 - The process flow metaphor of eight privacy design strategies
Source: Hoepman, 'Privacy Design Strategies'.

Thus, based on the conducted analysis, Hoepman extracts eight privacy design strategies:

- Minimize
- Separate
- Aggregate
- Hide
- Inform
- Control
- Enforce
- Demonstrate

Each of these strategies covers several privacy protection principles (except the demonstrate strategy, which matches the compliance principle).[431] Notwithstanding the difficulties in creating clear limits for the possible attainment of any strategy, especially considering how each strategy relates with the other strategies and the principles that they cover, Hoepman makes several distinctions between data-oriented strategies and process/policy-oriented strategies. The first four strategies (minimize, separate, aggregate and hide) are classified as data-oriented strategies, whereas the rest of them (inform, control, enforce and demonstrate) are policy-oriented strategies. This diversification is based on the role technology and law play in the creation, implementation, and evaluation of strategies. In essence, policy/process oriented strategies serve to evaluate the implementation of data-oriented strategies. Taking this into consideration, process/policy-oriented strategies should be understood as supportive to data-oriented strategies. However, they could exist as independent strategies. For instance, a company

[431] Hoepman (n 410) 11.

that collects and processes as much data as possible, without the implementation of Hoepman's data-oriented strategies, might carefully inform users about the purpose of their data processing so to give them a choice - to either take it or leave it. However, process/policy-oriented strategies are hardly meaningful as strategies that serve privacy protection without the implementation of data-oriented strategies (for instance, when considering a privacy protection approach, informing a user is only useful if the data subject may request the deletion of irrelevant data (data minimization strategy) or at least for such data to be hidden).

Table 3 – Classification of Hoepman's strategies

Data-oriented strategies	Process/Policy-oriented strategies
Data minimization	Inform
Data separation	Control
Hide	Enforce
Aggregation	Demonstrate

Notwithstanding their level of abstraction, data-oriented strategies are translatable into concrete tactics for processing data with the ultimate goal of protecting personal privacy. Nevertheless, the protection of personal privacy and the protection of personal data could affect other types of protections, including the protection of online gamblers from gambling-related harms. Therefore, keeping in mind the possibility that data protection may clash with the protection of online gamblers and influence the prevention/provocation of problem gambling, this research aims to demonstrate how the implementation of Hoepman's strategies, applied in the context of the processing of online gamblers' personal data, could influence the provocation/prevention of problem gambling. In turn, an answer to the central research question (how does the processing of gamblers' personal data affect their protection?) shall be provided.

4 Hoepman's privacy design strategies and the processing of online gamblers' personal data

With a view to analyzing how data processing affects gambler protection, this research focuses on data processing used for commercial communication and the identification of online gamblers for responsible gambling purposes. Concerning commercial communication, it is worth mentioning that responsible gambling as a set of guiding policy principles and measures, shape the contours of responsible commercial communication. However, commercial communication can come in various forms, including those that may result in advertising campaigns that potentially jeopardize gambler protection. In such a case, commercial communication shall be assumed as being in diametrical opposition to the identification of gamblers for the purpose of preventing problem gambling. An excessive processing of the personal data of online gamblers might be a *modus operandi* for forming commercial communications and might lead to adverse effects for gamblers. This sort of advertising tends to attract new gamblers or increases gambling consumption among experienced players. Thus, the aim of commercial communication, particularly of behavioral advertising, interrelates with the purpose of processing gamblers' personal data. In general, the purpose of personal data processing is a factor that is recieveing intense attention from various subjects. Therefore, it is no surprise that Hoepman gives

particular attention to the limitation of the purposes of personal data processing in his work. However, Hoepman's strategies do not cover all extracted principles, nor is the level of coverage identical. Concerning the purpose limitation principle, data minimization and data separation strategies cover this principle to some extent.[432]

A data minimization strategy is defined as "limiting usage as much as possible by excluding, selecting, stripping, or destroying any storage, collection, retention or operation on personal data, within the constraints of the agreed upon purposes."[433] Therefore, by implementing the strategy what is ensured is that personal data is processed in a non-excessive manner and according to an agreed purpose. This strategy has a direct impact on the quantity of processed data. In the context of online gambling, it might be claimed that the scope of processed data influences the identifiability of gamblers. On the one hand, collecting only a minimum amount of data (e.g. only that data necessary for the registration and authentication of players as well as for the provision of proper services), could be considered as corresponding to a pro-privacy oriented approach. On the other hand, it is not necessarily the case that the more data is processed the more negative effects a data subject is likely to experience. One might presuppose that a higher level of reliability in terms of determining gambler attributes, including those that indicate gambling behavior, may be attainable if a broad scope of gambler data is processed. In other words, processing as much gambler data as possible might be useful for the recognition of risky gambling and the subsequent protection of gamblers. For these reasons, the implementation of data minimization strategies might be taken as a factor that has a direct impact on online gambler protection. Hoepman's proposal for the data minimization strategy indicates not only what should be implemented (e.g. tactics) to achieve the underlying goal, but also indicates how and when the strategy could be implemented.[434] This could be an important matter, because it would be reasonable to presuppose that gambler protection in relation to data processing not only depends on the scope of the processed data, but also on temporal factors (when the data should be processed), as well as on decisions as to how to process such data.

Concerning the organization of databases and the distribution of data, the goal of the data separation strategy is to prevent a linking of data that may violate personal privacy. This strategy is closely related to the hide strategy that has an important function in access control and data sharing.[435] The hide strategy should provide the confidentiality, unlinkability, and unobservability of data, so to contribute to anonymity, undetectability, and pseudonymity.[436] Data separation contributes to the protection of personal privacy by separating collected data (even data collected in a way that tallies with the implementation of the data minimization strategy) and preventing a linking of data that may result in privacy invasive scenarios. Hoepman suggests unlinkability as one of the aims of the hide strategy, but also emphasizes its essential function in the separation strategy. Nevertheless, the separation strategy is an abstract approach without specific design patterns, whereas there are several design patterns within the hide strategy with practical usability (e.g. encryption, mixed networks, pseudonyms and

[432] Hoepman (n 410) 11.
[433] Colesky, Hoepman and Hillen (n 411) 3.
[434] "Minimization of data use could be carried out by yes/no decision whether data should be collected or by granular privacy settings that limits the scope of collected data. This strategy could be conducted by exclude, select, strip and destroy personal data. These activities are determined as privacy by design tactics and they might be carried out before, during and after collection of data." Colesky, Hoepman and Hillen (n 411) 3.
[435] Colesky, Hoepman and Hillen (n 411) 4.
[436] Ibid; Hoepman (n 410) 8.

anonymization).[437] Considering that data separation has a noteworthy role in the segmentation of online gamblers' data and data processing for different purposes (identification and/or commercial communication), particular focus is given to this strategy in this thesis. However, data separation and the rest of the data-oriented strategies also contain elements of hiding to some extent.

Apart from the hide strategy, data aggregation (which is also defined as an abstract strategy[438]) has to be taken into consideration in the context of this research. This strategy serves to limit "detail as much as possible by summarizing or grouping any storage, collection or operation on personal data, within the constraints of the agreed upon purposes."[439] This strategy is based on two specific tactics - summarization and the grouping of data. Data aggregation does not necessarily provide privacy protection. The size and diversity of the grouped data might influence the level of privacy protection. Hoepman's aim with the data aggregation strategy is to minimize the amount of data traceable to a particular individual from the processed data. Despite certain academic distinctions drawn by Hoepman between data minimization and data aggregation strategies, in practice, data aggregation might be deemed as a sub-category or a contributor to the data minimization strategy.[440] It might be said that the implementations of other data-oriented strategies directly influences the aggregation of data. Therefore, in this research, Hoepman's data aggregation strategy will be considered as a complementary factor to the data minimization strategy.

The particular focus awarded to Hoepman's data minimization and data separation strategies in this research is defended for three main reasons. Firstly, data-oriented strategies might be complemented with technical and organizational mechanisms that enforce compliance with the legal principles of data protection. However, data minimization and data separation strategies have been selected due to their primary role in technical and organizational compliance alongside the purpose limitation principle, which, as explained above,[441] is given particular attention in Hoepman's work. Secondly, the composition of these strategies includes hide and aggregation strategies, which, jointly, form a proper unity that is useful for the analysis that shall answer the main research question. The third reason refers to the fact that the processing of personal data is not necessarily 'privacy-preserving'. Privacy-protective scenarios belong to one side of the coin (its white side), which may, metaphorically, denote personal privacy. On the other side of the coin, we may see some scenarios that reflect non-privacy oriented approaches and strategies (the black side of the coin). Between them, there are various nuances of gray. However, white, black and gray scenarios might derive from the implementation of entirely legitimate strategies. As was explained, in contrast to the application of the data minimization strategy, processing a large volume of gamblers' personal data could be beneficial for gambler protection. Therefore, it seems that the black side of the coin is not always black (and the white side not always white). Due to this, the further analysis carried out in this research will not only consider Hoepman's data-oriented strategies, but their antipodes too. On the one side of the analysis, there will be privacy preserving scenarios (obtained by the implementation of Hoepman's strategies). On the other, the exact opposite scenarios. These scenarios are the consequence of the implementation of strategies that are diametrically opposite to data minimization and data separation strategies. The contours of privacy

[437] Hoepman (n 410) 8.
[438] Colesky, Hoepman and Hillen (n 411) 4.
[439] Ibid.
[440] Overlap between the strategies confirms the fact that anonymity and use pseudonyms are design patterns for the strategies of data minimization, concealment, and to a certain degree, data aggregation.

invasive strategies, the scenarios they create, and the scenarios obtained by the implementation of Hoepman's strategies, are presented in the following chapter.

Chapter VII: Strategies for the processing of personal data in the context of online gambling services

1 Introduction

This chapter highlights the differences between scenarios created via the implementation of four different strategies for the processing of gamblers' personal data. Two scenarios derive from Hoepman's data minimization and data separation strategies. The other two derive from opposing strategies – data maximization and data linking. Data maximization and data linking do not derive from Hoepman's work, but in the context of the present research, they are viewed and considered as situations where opposing strategies are chosen to those of data minimization and data separation. The reason for considering these two additional strategies is the assumption that the protection of gamblers could also benefit from as much data processing as possible, so to create and apply profiles of users at risk of problem gambling. None of these strategies present an ideal (or even realistic) type of gamblers' personal data processing but, rather, situations where the different consequences of the choices made within data processing scenarios are most visible.

The chapter is composed of six sections. The first section presents another analysis of the eleven privacy policies published by the selected online gambling service providers that were presented earlier in the thesis. The analysis of said privacy policies was already partially presented in Chapter IV, where the focus was on the sources of online gamblers' personal data. This chapter completes the analysis of these privacy policies by indicating the purposes for the processing of the personal data of online gamblers. Furthermore, several distinctive groups of online gambler data are identified (Section 2), so to handle the methodological challenges presented by the large number of data and data sources. The analysis of the data and the grouping of said data into related categories allows for a structured presentation of the implementation of Hoepman's strategies in the context of online gambling, which is presented in Section 3. The sections that follow will then present scenarios formed by the implementation of the four strategies for processing data, starting with those based on the implementation of data minimization and data maximization strategies (Section 4), followed by scenarios created by the cross-linking of online gambler data (as a consequence of a data linking strategy) and a data separation strategy (Section 5). The final section draws several conclusions on these strategies and scenarios (Section 6).

2 The personal data of online gamblers and processing purposes

Hoepman's privacy design strategies offer an abstract methodological approach whose implementation in business domains (including that of online gambling) needs a proper practical context. Therefore, it is possible to engage with Hoepman's strategies once we know which data has to be processed. However, enumerating all the personal data that could be collected from online gamblers and then processed is, methodologically, very challenging. The 11 privacy policies selected for this research provided their service providers with the possibility to process all the data that they collect. In other words, said service

providers are not limited in terms of the amount of data that they can process. They have a potentially limitless scope of data to process, and should they find the data in question useful for certain purposes, are unrestricted in terms of where they source said data from.[442] Therefore, to overcome the methodological challenge regarding the presentation of the data that service providers can process, this part outlines the purposes for data processing, in order to extract several different groups of processed data. Another key point to remember is that different purposes for the processing of gamblers' personal data affect gambler protection in different ways. Therefore, the categorization of data is organized in accordance with data processing purposes.

Based on an analysis of 11 privacy policies, the purposes for processing online gamblers personal data can be generalized to three operational aspects: account-related data processing, data processing for purposes related to the provision of services, and processing for analytical purposes. The boundaries between these three purposes are blurred, but the essence of each of them is determinable and describable.

Online gambling, as an account-based form of gambling, requires the use of personal accounts to, *inter alia*, access gambling offers, deposit and withdraw funds for gambling, contact service providers for customer support, get informed about certain sorts of promotions, and for several other activities related to online gambling services. A personal account could be perceived as a central hub for all procedural activities regarding online gambling. Thus, the opening of a personal account is the first mandatory procedural step that all gamblers have to take. For that reason, the use of an individual's personal data for creating, managing, maintaining and operating a personal account are common purposes that almost all of the analyzed privacy policies explicitly mention.[443] A necessary step in the creation of a personal account is the registration of the consumer. The registration serves to verify a consumer's identity and age.[444] Therefore, a proper registration ensures that the online gambling service provider abides by the relevant laws and regulations applicable to them,[445] including those norms regarding the age threshold for gambling. During the registration process, gamblers create their authentication tools by creating usernames and passwords.[446] This is one kind of security and verification measure[447] that confirms the identity of an individual who has successfully completed the registration process. In addition, this tool is used to provide the individuals with access to their personal account and enables them to gamble. The accuracy of a consumer's identity is also important for the disclosure of personal information to third parties, such as financial institutions that transfer funds for gambling purposes.[448]

While providing their services, online gambling service providers build personal profiles of their customers and customize their services. The leading purpose of customization is to individualize and

[442] For more about see chapter IV, subsection 3.4.
[443] Betfred, 'Privacy Policy'; Bwin, 'Privacy Policy, art 2; Stan James, 'Privacy Policy: How Information is Used'; Paddy Power, 'Privacy Policy, art 5(1a); Ladbrokes, 'Privacy Policy: Information Collected'; Coral, 'Privacy Policy: art 3(1)'; Betfair, 'Privacy Policy: How Your Personal Information Will be Used?'; Bet365, 'Privacy Policy: Information Collected and How It Is Used'.
[444] For more about registration process see Chapter V.
[445] Coral, 'Privacy Policy: Article 3(1)'.
[446] Betclick, 'Privacy Policy: Your Personal Data'.
[447] Coral, 'Privacy Policy: art 3(1)'.
[448] Betfred, 'Privacy Policy'; Paddy Power, 'Privacy Policy: art 5(1d)'.

improve their service.[449] Commercial communications are given an important role in the improvement of online gambling services. Therefore, a common feature of all privacy policies is the regulation of commercial communication. Regardless of their comprehensiveness and of how detailed they are, the policies emphasize the service provider's right to send advertising information and proper marketing material. Supplying gamblers with the appropriate and tailored marketing material that matches their marketing preferences[450] is the sort of commercial communication that individualizes the service. For that purpose, data analyses in respect to a gambler's use of the service are commonly conducted. In other words, by analyzing the behavior of gamblers, service providers recognize personal preferences towards specific types of gambling and use appropriate advertising material to match the personal interests of their consumers. Finally, the available data might provide information as to how gamblers react to commercial communication.[451]

Apart from commercial communication purposes, analyses of online gamblers' personal data might be carried out for the improvement of services in terms of preventing fraud, cheating or other illegal activities.[452] In addition, the data collected from surveys, reviews and feedback might be analyzed for purposes that match the needs for the improvement of the service (e.g. by detecting the most common customer complaints, service providers could identify technical maintenance requirements that, if met, may improves their service, or may discover whether their staff and employees need additional training[453]). Finally, gambling behavior might show signals of risky behavior and, subsequently, service providers might react in a manner that tallies with a responsible gambling approach.[454]

The overall process of data processing can be perceived as an arranged order, starting from the consumer's registration and finishing with an analysis of their gambling behavior. To provide a proper service, several different groups of data have to be processed. However, there may be an overlap of purposes in terms of why certain data is processed; some data may be processed for several different purposes. For instance, financial data and real-time gambling behavioral data has to be processed both for the provision of proper gambling services and for the implementation of responsible gambling measures. Similarly, the data processed for profiling and customization purposes is important for both commercial communication purposes and for the protection of gamblers. In addition, data processing for the provision of online gambling services is not a one-way street. It is, rather, a never-ending process.[455] Gambling activities evidence a player's habits. Observing their gambling behavior reveals new data that could be used for commercial communication purposes, but also for actions that may contribute to the prevention of problem gambling (check the figure below). Thus, the new data might introduce new information that may be useful for the customization of a service.

[449] Stan James, 'Privacy Policy: How Information is Used'.
[450] Paddy Power, 'Privacy Policy: article 5(1e)'; Betfair, 'Privacy Policy: How your Personal Information will be used?'; Coral, 'Privacy Policy: arts 3(1.6) 3(1.7).
[451] Coral, 'Privacy Policy: art 3(1.17)'.
[452] Bet365, 'Privacy Policy: Information Collected and How It Is Used'.
[453] Coral, 'Privacy Policy: art 3(1.17)'.
[454] All service providers whose privacy policies were observed have responsible gambling measures offered on their webpages
[455] See the feedback loop on online gamblers personal data processing in Chapter IV, section 4.

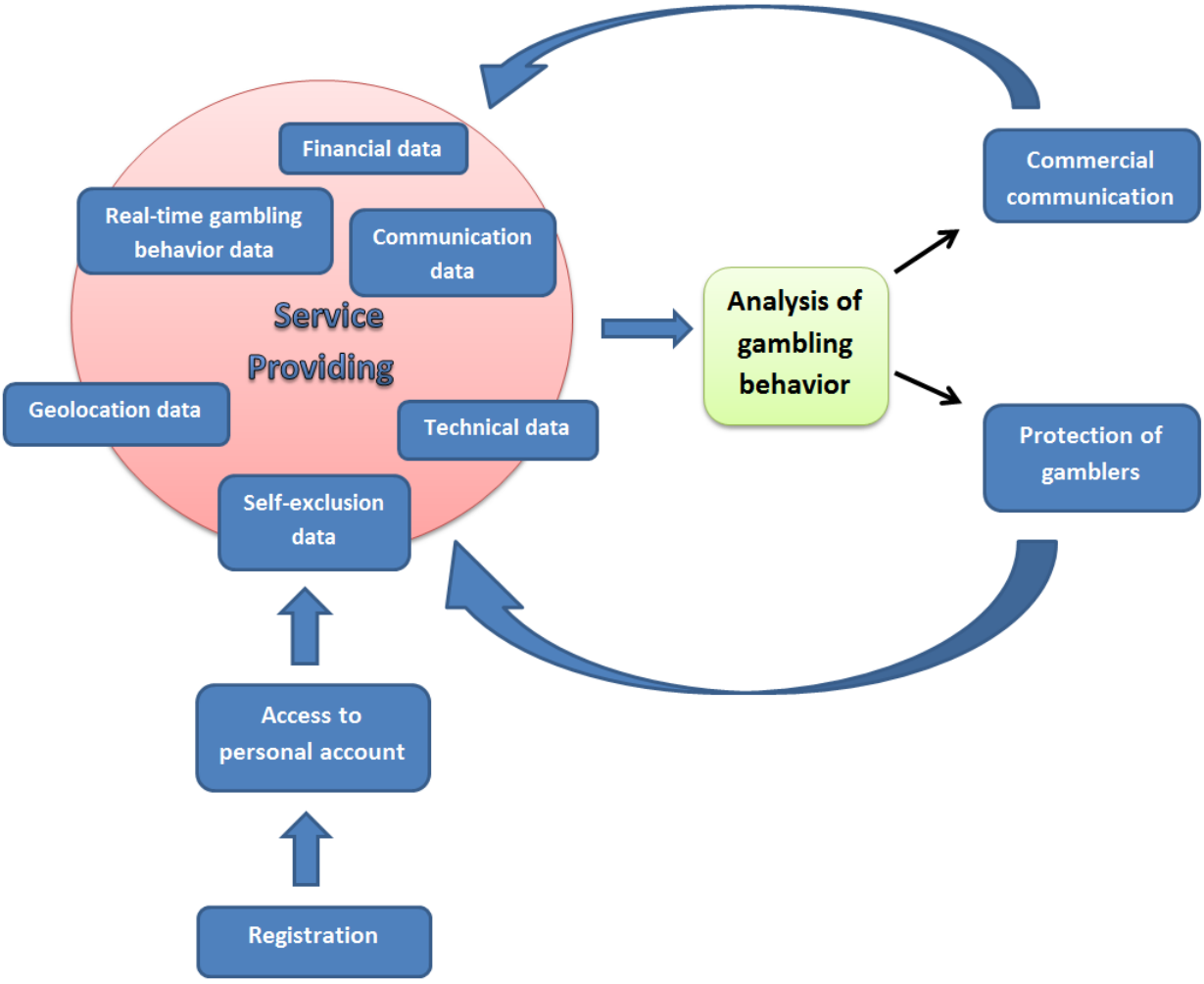

Figure 8 – the procedure of processing gamblers' personal data during the provision of online gambling services

Notwithstanding the various purposes for processing online gamblers' personal data, which are mainly comprehensible as a threefold relation (account-related data processing, the processing of data for the purpose of service providing, processing for analytical purposes), in the context of the present research, particular attention is given to purposes which, at first glance, are more specific (commercial communication purposes and for protective functions). However, the processing of data for purposes related to the provision of services shall be considered as the core purpose, that generates all of the others. It is the main motivational factor for service providers and their business needs on the one hand, and for gamblers and their desires to entertain themselves on the other. All of the other purposes derive from this one.

The analysis of the privacy policies presented in Chapter IV, and briefly presented above, demonstrated that gamblers generate multifarious amounts of data while gambling, and that online gambling service providers can use the available data for various purposes. These include registration purposes, the provision of their service, and commercial communication, as well as protective, purposes. The majority of said data could, potentially, be used for several different purposes. However, hardly any data, apart

from one's personal number, is processed for only one purpose. Based on the analysis of the privacy policies and the author's hands-on experience regarding online gambling issues, certain types of data and their use for the four identified purposes, have been put together and presented in the table below.

Table 4 - Online gambler data processed by service providers for the purposes of registration, the provision of services, commercial communication and protection.

	Registration	The Provision of Services	Commercial Communication	Protection
Personal name				
Personal number				
Date of birth				
Email address				
Citizenship				
Mobile telephone number				
Postal address				
Username				
Password				
Security question				
IP address				
Gender				
Profile picture				
Credit Card info				
Financial statement on personal account				
Bank account info				
Mouse clicks				
Visited pages				
Mouse scrolls				
Self-exclusion data				
Self-assessment data				
Interviews				
Reviews				
Surveys				
Browser info				
Software info				
Operating system info				

Notwithstanding the very wide and probably unlimited scope of available data, this analysis suggests that several groups of data can be distinguished in accordance to their processing purpose. The data is grouped as follows:

1. Registration data – Data such as an individual's name, surname, personal number, date and place of birth, passport number (or other ID document number), citizenship, gender and personal photo. This group of data is linked to a specific individual. Specifically, it is linked to a consumer who intends to gamble. Some of the data within this group is immutable (e.g. one's date and place of birth) or difficult to change (e.g. name, surname, gender, personal number, citizenship). This data serves to verify a consumer's identity and to check that they are over the age threshold.
2. Authentication data – This data could be considered as a necessary tool for determining whether a customer is an online gambler who completed the registration procedure and who is authorized to access a certain personal account. Data such as one's username, password, security question and email address are the most common forms of authentication data.
3. Technical data – This is information about the browsers, operating systems, and software that gamblers use, as well as data about the appropriateness of their technical infrastructure (e.g. data collected by software crash reports). Certain types of gambling cannot be carried out without the use of specific software that is created for gambling purposes. In addition, some financial transactions can only be executed if the financial service provider's webpage is accessed through a certain browser. Moreover, it is possible that browser settings and other software settings (e.g. anti-virus software) may need to be adjusted to enable financial transactions and the gambling service in general to function properly.
4. Self-exclusion data.[456]
5. Real-time gambling behavioral data - This data could indicate the duration of gambling sessions, an individual's preferred types of gambling, the frequency of gambling, the number of visits made to a webpage, and the time and date of access. Their analysis might reveal a considerable amount of information regarding an individual's gambling behavior, including his/her gambling preferences (which are relevant for commercial communication purposes) as well as patterns of risky gambling (relevant for protection).
6. Financial data - The fundament of gambling is the wagering of a stake, and for that reason, financial data must be processed. Credit card, bank account, and e-wallet information, or the financial state on a gambler's personal account, might be considered as financial data. Processing financial data might evidence the amount of money spent on gambling as well as details about the frequency and time of spending. This data may provide indications of when an individual is engaging in the practice of chasing losses, which is the most obvious indicator of problem gambling as a medical disorder.
7. Geolocation data – Geolocation data explicitly indicates the position of the devices a gambler uses to connect to the network and gamble. The geolocation of the device is inferred by determining the position of the device in the network (e.g. by observing its IP address). Geolocation data might be used for commercial communication purposes and for legal compliance matters.[457]

[456] For more about self-exclusion mechanisms see Chapter V, subsection 3.3.
[457] For more about see Chapter IV, section 3.

8. Communication data – Different forms of correspondence between the representatives of service providers and gamblers might be recorded and stored. In addition, surveys, feedback, and customer reviews are also recorded and stored. Communication data contributes to the observation of gamblers' personal gambling preferences, as well as to the profiling of risky gamblers. Positive or negative reviews about certain games should indicate information about personal preferences for certain types of gambling. In addition, contact with specialized departments that provide professional assistance to problem gamblers may indicate concerns about gambling behavior.

Considering these different groups of personal data and the potentially large volume of such data, the implementation of various approaches and strategies for data processing, including those proposed by Hoepman, impose the need to determine goals, tactics and other issues that would make a strategy applicable in practice. Therefore, in the following sections of the chapter, Hoepman's strategies are adapted in a suitable way, alongside hypothesized scenarios in the context of online gambling, the analysis of which will help to answer the main research question.

3 Strategies for processing the data of online gamblers

This section focuses on the main aspects of Hoepman's strategies in the context of the provision of online gambling services, and presents scenarios that should contribute toward answering the main research question. In the following subsections, the methodological cornerstones that shape Hoepman's strategies in the context of the provision of online gambling services are explained.

3.1 Three hypothetical online gamblers

The presentation of strategies for the processing of online gamblers' personal data will be assisted by a story about three hypothetical online gamblers – Alice, Bob, and Carol. Each has a strong passion for online gambling. However, despite this common feature, these gamblers are very different from one another. Alice is a moderate gambler, Bob is a gambler at risk and Carol is a medically-diagnosed problem gambler. Concerning the terminological complexity regarding the different types of gambler,[458] the notions of moderate, at risk and problem gambler should be taken as terminological guidelines that refer to three distinctive ways of gambling behavior. Alice is a gambler who gambles in a self-controlled manner that does not jeopardize any personal or professional aspects of her life. Bob, however, might be considered a risky gambler due to his propensity to spend more time and money on gambling than he normally plans to. Sometimes Bob's friends and family members notice that he neglects his social relations, as well as his professional obligations, due to his excessive way of gambling. In addition, Bob self-excluded himself from online gambling services on some web pages. Lastly, Carol is a problem gambler who has been diagnosed as such by professionals. She receives medical treatments and therapy which serve to help her heal from her addictive gambling behavior. It is therefore reasonable to assume that Carol is prohibited from gambling (or only allowed to gamble in a very controlled way). Yet, her ability to access online gambling services is difficult to fully control.

Why does this story present three different types of gamblers? Notwithstanding very comprehensive, non-harmonized and complex scientific attitudes from within the domain of gambling studies, and in

[458] For more about see Chapter III, subsection 3.2.

respect to problem gambling and problem gamblers,[459] in general, gamblers might be grouped into different categories based on certain common features of their gambling behavior. Alice, Bob, and Carol are the representatives of three groups of gamblers that deserve different sorts of attention in regards to their gambling behavior and the issue of problem gambling. Alice is a type of gambler whose behavior does not indicate a risky way of gambling. Thus, her protection from the adverse aspects of gambling does not impose a need for particular scrutiny over her gambling behavior. Carol, however, presents an utterly different case from Alice. Carol's gambling behavior endangers the medical treatment she is receiving for her problem gambling, and for that reason, she is prohibited from gambling (or only allowed to gamble in a very controlled manner). Therefore, her behavior deserves a higher level of attention than Alice's (and Bob's) behavior. Moreover, Carol's gambling might be considered unlawful, due to her limited legal capacity as a consequence of her diagnosis. Finally, Bob's gambling behavior could be seen as evidencing the possibility of his being at a transitional stage, from a moderate type of gambler to a medically diagnosed problem gambler. Observing his gambling behavior and any subsequent actions taken in relation to it, may either prevent the occurrence of problem gambling or provoke more adverse gambling consequences that could, potentially, transform Bob's gambling behavior into behavior that is similar to Carol's.

Alice, Bob and Carol gamble on various web pages playing different types of games. They experience multifarious situational and structural characteristics of gambling that influence their passion and their gambling, as well as their wealth. Considering that Alice, Bob, and Carol have been gambling for a long time, it is reasonable to assume that their personal data would have been processed in numerous ways and for various reasons related to online gambling. This story about Alice, Bob, and Carol presents us with the opportunity to explore several scenarios that describe how the processing of personal data serves identification and commercial communication purposes that might influence gambling behavior. The scenarios are produced by implementing Hoepman's data minimization, and data separation strategies and their antipodes - data maximization and data linking. The accompanying analysis includes the presentation of the pros and cons of opposite approaches concerning hypothetical effects on the provocation/prevention of problem gambling. Any further explanation related to complex psychological and biochemical processes in the prevention/provocation of problem gambling that concern different categories of gamblers is beyond the scope of this research. Nevertheless, before the presentation of the scenarios and their accompanying analysis, the contours of the strategies in the context of the processing of the personal data of online gamblers are further clarified.

3.2 The contours of strategies for the processing of online gamblers' personal data

The analysis of the scenarios in the following section starts with the presentation and discussion of the scenarios that derive from a comparative deconstruction of data minimization and data maximization strategies (Section 4). A data maximization strategy creates scenarios that radically oppose the privacy-protective approach. The goal of a data maximization strategy is to process as much personal data from online gamblers as possible, so to then use such data for their protection and for commercial communication purposes. The essential keystone of the strategy is the lack of limitations regarding the processing of personal data due to the absence of any controlling mechanisms created for privacy protection purposes. The selection of data, either before the collection or after the destroying of such data, does not feature in the strategy. Therefore, this strategy creates scenarios that feature a

[459] For more about see Chapter III, section 3.

processing of the broadest scope of online gamblers' data, both for identifying gamblers and for commercial communication purposes, and in a way that neglects the current normative framework for the protection of personal data. Contrary to data maximization, the scenarios deriving from Hoepman's data minimization strategy are founded on a restrictive approach toward the processing of online gamblers' personal data. The scenarios that may result from the implementation of one or more proposed tactics within a data minimization strategy (excluding, selecting, stripping or destroying) include those where the data processed is only processed for those purposes that are necessary for the technical functioning of the provided service and for the fulfillment of relevant legal requirements.

After this analysis related to the processing of different scopes of online gamblers' data, the subsequent part (Section 5) sheds light on the effects of data separation and data linking. Hoepman's data separation strategy is based on the isolation and distributed processing of data. Data linking, on the other hand, seeks to enable more connection (as much as possible) and a crosslinking of personal data. However, the determination of the lowest threshold for the processing of online gamblers' personal data, as well as which personal data must be linked, could take various elements and factors into consideration. Non-harmonized national gambling legislations in the EU make this determination very complex, due to the heterogeneous ways in which national standards regulate matters regarding the protection of gamblers.[460] Additionally, EU Law does not regulate how the processing of online gamblers' personal data ought to be used for the protection of gamblers. Therefore, this presents a methodological challenge for determining the threshold for a minimum amount of online gamblers' personal data, as well as the lowest level of data linkage that would be necessary for protecting gamblers. In order to find a way to determine a threshold for a minimum level of data that has to be processed for protective purposes, as well as for a minimum level of data linkage, this research pays particular attention to the EC Recommendation.[461]

The EC Recommendation proposes a marker for the lowest level of online gambler protection that EU Member States should implement in their national gambling legislations. For that reason, the standard of protection proposed by the EC Recommendation is taken as a minimum level of protection for further analysis in this research. However, the EC Recommendation addresses the application of some protective means in a very general manner. It must be said that the text of the document combines concrete obligations on the one hand, with general provisions that outline what shall be achieved on the other, but does so without detailing how they will be achieved. Therefore, to determine which type of personal data shall be processed, as well as how and for which purposes, a dual approach is applied. Firstly, the analysis focuses on personal data and the processing purposes explicitly enshrined in the EC Recommendation. Processing a minimum amount of data refers to the implementation of a data minimization strategy, whilst processing more data (beyond the minimum amount) shall not be deemed as an implementation of this strategy. Secondly, protective aims in the EC Recommendation, the normative structure of which does not contain concrete ways for their achievement, including a clarification of which data shall be processed and how, are considered in this research through the presentation of several hypothetical scenarios based on the processing of online gamblers' personal data that, according to the author's view, contribute most suitably to the declared aims of protection.

[460] For more about regulatory landscape on online gambling in EU see Chapter II, section 4.

[461] Commission Recommendation 2014/478/EU of 14 July 2014 on principles for the protection of consumers and players of online gambling services and for the prevention of minors from gambling online [2014] OJ L214/38 (EC Recommendation).

However, the minimum level of data that ought to be processed is not the only criteria for differentiating between the four strategies that will be presented in the following sub-sections. Apart from the scope of the processed data, one more factor is taken into consideration. That is, those who wield control over the processing of said data. Various entities might process data. Furthermore, the data could be under the control of different subjects. The GDPR defines a data controller as "the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data (…)".[462] Evidently, the data controller is the entity that decides on the purposes and means of data processing. In other words, a data controller is the subject who initiates the processing of data and is capable of answering why such processing is taking place.[463] The linking of data that is not under the control of only one data controller is viewed as the second methodological cornerstone for determining whether particular examples of data processing belong to either a data linking or data separation strategy. In general, if the data controlled by different subjects is linked, then it might be said that a data linking strategy has been implemented.

Exceptions to the methodology of strategies for the processing of online gamblers' personal data mentioned above will also be addressed. They will be highlighted and explained. Finally, all of the scenarios that are created and derive from the implementation of Hoepman's strategies are mainly discussed in the context of Alice, Bob, and Carol`s situations, in order to highlight the potential effects they may have on their gambling behavior and in respect to the prevention/provocation of problem gambling.

4 Data maximization vs data minimization

The analysis of the selected privacy policies showed that there numerous data exists that online gambling service providers process for the regular working of their service. This data was grouped into eight distinctive categories. However, the processing of some categories of data is less relevant for gambler protection and commercial communication than others. This section presents the most illustrative scenarios concerning the effects of the implementation of data maximization and data minimization strategies. Therefore, the following analysis does not include an observation of all the data that service providers process, nor all of the eight categories of data that were identified above. The comparative analyses and presentation of the scenarios created by the implementation of data minimization and data maximization strategies, will be structured alongside the groups of online gamblers' personal data that the author of this study considers to be the most suitable for presenting the most illustrative scenarios concerning effects of the strategies' implementation. Additionally, particular focus is given to the selected groups of data due to their omnipresence in the processing of data for responsible gambling purposes. The following groups of data will be focused upon in the subsections below:

- Registration data
- Self-exclusion data
- Data gathered through self-assessment tests
- Real-time gambling behavioral data

[462] GDPR, art 4(7).

[463] Article 29 Data Protection Working Party, Opinion 1/2010 on the concepts of 'controller' and 'processor', 00264/10/EN WP 169, 16 February 2010, 8.

- Databases of blacklisted gamblers

4.1 Registration data

Alice, Bob, and Carol have to register themselves with a gambling service provider if they intend to gamble. The registration process is a necessary step that requires the individual to reveal a certain amount of personal data. Data processing during the registration process should be effective at identifying the existence of a real person behind the player's account. Registration is an authorization process and serves to create authentication tools. These tools allow for the identification of a gambler, separating his/her activities from those taken by other gamblers and ensuring a proper provision of the online gambling service. Therefore, if the credibility of a gambler's identification is questionable, then the processing of data related to his/her gambling activities could provoke numerous problems in respect to the service providers regular provision of services and bring about opportunities for the misuse of data. The registration process could serve three distinctive purposes:

- the first refers to the authorization process, which essentially determines the consumer's age;[464]
- the second serves to create reliable authentication mechanisms;
- the third creates a central hub for the building of a profile for an online gambler.

Therefore, the selection of data for the registration process shall be purposeful and justifiable. Taking into account the responsible gambling goals, the EC Recommendation proposes the following information as being that which is required for registration purposes – name, address, date of birth and electronic mail or mobile phone number.[465] We may consider this data as the minimum scope of data necessary for registration purposes. Thus, if implementing a data minimization strategy, any additional data should stay hidden to service providers, as data that is irrelevant for the purposes of registration.

4.1.1 Data minimization and the registration process

By implementing a data minimization strategy, all of the data necessary for registration purposes has to be processed to satisfy the particular purposes within the registration process. The dates of birth of Alice, Bob, and Carol reveal whether they belong to the category of consumers that satisfy the relevant legal requirements related to the applicable age threshold for gambling. The address might indicate a customer's place of residence. This information is relevant for compliance matters, due to the accessibility of online gambling service providers across EU Member States. Service providers shall provide their services (and be accessible) only if they are licensed to provide said services in the national market in question. Considering that Alice, Bob and Carol's addresses might refer to their citizenship or to their permission to reside in a particular country, service providers have process this data when deciding upon whether to accept their registration or whether to deny them and suspend their temporary accounts. The verification of personal data requires stable communication between consumers and service providers or between service providers and third parties. They may use email (the most common means of communication for verification purposes), or even the post. Service providers might send documents that have to be filled in by the consumers and then sent back to them. By sending such documents back, Alice, Bob and Carol would confirm that they live at the address they gave during the registration process. Therefore, both gambling legislation and service provider policies

[464] For more about age verification mechanisms see Chapter V, subsection 3.1.2.
[465] EC Recommendation, art 16.

select information that must be processed for the registration procedure. However, access to the necessary data might create risks for the implementation of a data minimization strategy.

Checking personal documents as a way of verifying data provides service provides with an opportunity to get an insight into a consumer's personal data that may go beyond the minimum scope of personal data necessary for registration purposes. By checking a copy of Alice's passport, service providers can find out her nationality, personal number, passport number, where and when the passport was issued, when it will expire, confirm her gender, and even view her personal photo. A data minimization strategy would require the service provider to select only the data that is strictly necessary for the purpose of registration and hide any additional data before the information is sent to an online gambling service provider. By indicating which identification document consumers must provide for verification purposes (which is often the case in practice), service providers oppose a data minimization strategy and create opportunities for the excessive processing of personal data (or more specifically, for the implementation of a data maximization strategy). As mentioned, a passport, as a form of identification document, contains data such as the gender of the consumer. The processing of such information is unnecessary for the registration procedure. Thus, after the registration procedure is complete, the online gambling service provider should destroy such data in order to prevent any excessive processing of said data in the future (e.g. the copy of the identification document should be destroyed after the validation process has been completed). However, if certain data has to be retained (e.g. because the relevant gambling legislation imposes such an obligation) then access to said data has to be restricted[466], and should be off limits to entities that could process said data for any purpose other than registration.

Another possibility for verifying registration data is to do so through third person intervention.[467] A third person, acting as a reliable agent, can confirm whether consumers possess the qualities that would allow them to gamble online. Via this method, customers do not need to disclose their personal data to the service provider. They are expected to present evidence that a reliable agent checked their identities and has confirmed that they satisfy the requirements concerning the age threshold for gambling. Using an attribute-based identification system might serve this purpose.[468] This system can reliably detect whether a gambler meets the age threshold, whilst hiding the specific age of the gambler, as well as other data that service providers might go on to use for several other purposes. Moreover, the EC Recommendation does not indicate which entity ought to process the minimum scope of gamblers' data. The fact of the matter is that according to the EC Recommendation, personal data, such as one's name, surname, and address, might remain unknown to service providers. The EC Recommendation lays down that this data has to be processed (regardless of whether the data processor is a trustworthy agent or an online gambling service provider) so to ensure that only authorized consumers are permitted to gamble. Thus, the intermediary activity of a third-party agent decreases a service provider's chances for collecting an extensive volume of data, which corresponds with the goal of data minimization strategies.

4.1.2 Data maximization and the registration process

In contrast to data minimization strategies, data maximization strategies do not constrain service providers by allowing them to only process data for agreed purposes. The implementation of a data

[466] Colesky, Hoepman and Hillen propose restricting access to data as the tactic of the hide strategy.
[467] See the examples of personal data verification in Denmark and Finland in Chapter V, subsection 3.1.2.
[468] For an example of an attribute-based identification system, see: IRMA project, <https://privacybydesign.foundation/irma/> accessed 6 November 2017.

maximization strategy would allow online gambling service providers to experience a broad level of autonomy when deciding how they will use the data that they have collected. For instance, the postal address of a consumer, whilst useful for registration purposes, may also be used for sending promotional material to gamblers. At this point, we should look back at the contours of Hoepman's proposal of the data minimization strategy, so to make a distinction between data minimization and data maximization strategies. Hoepman's proposal for data minimization refers to a level of data processing and its "limiting usage (of data) (…) within the constraints of the agreed-upon purposes."[469] Therefore, he embeds the purpose limitation principle within his proposal for the data minimization strategy.[470] Thus, one more distinctive factor of the implementation of a data minimization strategy, as compared to a data maximization strategy, concerns the purpose of the processing of data that is collected during the registration process. As previously explained, the EC Recommendation is used as a yardstick for determining what amounts to a minimum amount of data. However, as regards the registration process, the implementation of a data minimization strategy is only possible if the proposed amount of data is only processed for registration purposes. Any processing that goes beyond the registration purpose would fall under the scope of a data maximization strategy. For that reason, it would be reasonable to expect that the implementation of a data maximization strategy leads to gamblers' personal data being processed (collected during the registration procedure) for various purposes other than that of their registration.

By implementing a data maximization strategy, the scope of data required for registration purposes could be broadened. Additionally, what would fall under the minimum scope of data could be used for purposes other than that of registration. It is a fact that emails and postal addresses are valuable channels for communication between service providers and players. Nevertheless, an individual's address is not only a communication channel, or piece of data that indicates a place of residence, but data that may implicitly reveal useful information for commercial communication purposes, such as the socio-cultural and demographic aspects of an individual's life.

Background: Socio-cultural and demographic features and their impact on gambling behavior

Scientific studies have demonstrated that socio-cultural and demographic features correlate with gambling behavior and the provocation of problem gambling. One of the most comprehensive studies about problem gambling in Europe[471] is composed of country reports from 21 European States and showed that socio-cultural factors (such as age, gender, residence, civil status, being a part of a particular social group, occupation, and education level) influence problem gambling. The available data showed that the prevalence of problem gamblers among certain social groups is noticeably higher than it is in the case of some other groups. In Belgium, the prevalence of problem gambling among gamblers between 16 and 24 years of age is at 4.0%. Whereas the percentage drops to 1.4% among gamblers between 35 to 44 years of age. In the same country, the prevalence of problem gamblers among single people is at 3.8%, whereas 1.2% of married people are problem gamblers.[472] Concerning employment and occupation in France, the most frequent visitors of casinos are retired people (13%).

[469] See Chapter VI, sections 3 and 4.

[470] The purpose limitation principle is one of the most important principles for processing personal data laid down by GDPR and EU Data Protection Law. According to article 5(1)(b) of GDPR personal data shall be "collected for specified, explicit and legitimate purpose and not further processed in a manner that is incompatible with those purposes;". More about in legal analysis presented in Chapter VIII.

[471] Gerhard Meyer, Tobias Hayer, and Mark Griffiths (eds), *Problem Gambling in Europe: Challenges, Prevention, and Interventions* (Springer 2009).

[472] Cristophe Druine, 'Belgium' in Meyer**,** Hayer, and Griffiths (n 471) 6.

Farmers visit casinos less than any other category of consumers (1%).[473] Additionally, 91.6% of gamblers in France are male, and the prevalence of problem gamblers in the overall population is higher among the male population than it is for the female population.[474] The same study also demonstrated that different types of gambling carry different levels of popularity throughout the various countries and regions examined. In Estonia,[475] Finland,[476] and Germany[477], the most popular type of gambling is playing on slot machines. Whereas, in the United Kingdom, gamblers prefer card games and sports betting.[478] Moreover, the data demonstrated that different social groups within a country prefer different types of gambling. In Estonia 40% of gamblers between 20 and 29 years of age gamble on slot machines, whereas only 2% of players between 60 and 74 years of age practice that type of gambling.[479] Notwithstanding the fact that this study does not observe online types of gambling, socio-cultural and demographic factors are useful indicators for recognizing several issues that are important for the formation of gambling behavior. These factors play a considerable role in the etiology of problem gambling.[480] Also, more recent studies have demonstrated that there are no significant demographic differences between those who gamble online and gamblers who do not engage in online gambling.[481]

It is beyond the scope of this research to discuss the accuracy of the different studies that observed the socio-cultural and demographic factors in relation to problem gambling. What is important is the fact that scientific studies demonstrate a correlation between the socio-cultural and demographic features of different groups of gamblers and the risk of problem gambling. Therefore, the observation of socio-cultural and demographic factors could assist in the profiling of online gamblers and their behavior.

The collection and processing of data during the registration process might reveal certain socio-cultural and demographic features of Alice, Bob, and Carol. They could, for example, live in three different countries. By observing their postal addresses, we may realize that Alice lives in a state where gambling is socially acceptable, very developed, well accessible and where citizens are known to prefer particular types of gambling. Bob, however, may live in a country where gambling is stigmatized, is not very popular among some social groups and where the gambling market is not developed.

A consumer's address not only indicates the country in which an individual resides, but also the region, city or even neighborhood where the consumer lives. The neighborhood a consumer lives in could be indicated by the address, which is then revealed to the online gambling service provider. The EC Recommendation does not indicate whether the address refers to the postal or residential address. However, an individual's postal address is often the same as their residential address. This assumption could be confirmed by the implementation of a data linking strategy. The address of an online gambler's place of residence might be considered as spatial related data. The combination of spatial data with detected risks concerning the population that live in certain observed areas has been utilized in various domains (e.g. business, public defense, and for the creation and realization of public policies).[482] In 2016,

[473] Marc Valleur, 'France' in Meyer**,** Hayer, and Griffiths (n 471) 74.
[474] Ibid 76.
[475] Stella Laansoo and Toomas Niit, 'Estonia' in Meyer**,** Hayer, and Griffiths (n 471) 43.
[476] Tapio Jaakkola, 'Finland' in Meyer**,** Hayer, and Griffiths (n 471) 61.
[477] Gerhard Meyer and Tobias Hayer**,** 'Germany' in Meyer**,** Hayer, and Griffiths (n 471) 88.
[478] Mark Griffiths, 'Great Britain' in Meyer**,** Hayer, and Griffiths (n 471) 107.
[479] Laansoo and Niit (n 475) p.43
[480] Namrata Raylu and Tian Po Oei, 'Role of culture in gambling and problem gambling' (2004) 23 Clinical Psychology Review 1087.
[481] Sally Gainsbury and others, 'A digital revolution: Comparison of demographic profiles, attitudes and gambling behavior of Internet and non-Internet gamblers' (2012) 28 Computers in Human Behavior 1388.
[482] One of the methods for combining spatial-related data with risk factors can be traced back to the USA during the XX century. This method is known as redlining. The general goal of redlining is to detect geo areas where the

the City of Westminster, Manchester City Council and the Local Government Association[483] conducted a project aimed at creating localized gambling-related risk indexes for certain local areas.[484] The project's goal is to "consider the types of people who may be at a greater risk of harm from gambling and where they might be located."[485] The project examined previously conducted studies and reports about risk factors that are associated with problem gambling and where these risk factors are located in Westminster[486] and Manchester.[487] By doing so, several gambling-related risk indexes were formed and visually presented on a geo map. Thus, the project provided an insight into the features of the selected areas in relation to the exposure of the population that lives in those areas to different gambling-related risks. On the one hand, this project is an example of how gambler-related data might serve for the detection of areas that should be the focus of public policies whose implementation seeks to improve public welfare. On the other, this project might assist in estimating the presence of gambling-related risks in respect to certain addresses. Assuming Bob lives in Manchester, by revealing his place of residence during the registration process, his online gambling service provider would be able to apply that information and find out the features of Bob's neighborhood by referring to existing information on gambling-related risk factors in Manchester, or even find out whether Bob lives among 'economically active unemployed residents' or with 'residents from relevant ethnic groups'. Thus, by simply looking at Bob's address, one could make some preliminary assumptions as to whether Bob belongs to a socially risky group of gamblers. However, it might also be the case that Alice, for example, who is a moderate type of gambler lives in a neighborhood that has many problem gamblers. Therefore, there is the risk that during the process of data analysis, Alice's online gambling service provider categorizes Alice as a risky gambler.

The characteristics of a given area (e.g. economic parameters such as the average salary or unemployment rate in the area, its organization, and the structure of the gambling market) might indicate additional data that may be useful for profiling Alice and Bob, and that could shed light on their gambling habits. Therefore, during the registration process, service providers could implicitly acquire data as to an online gambler's level of education, their personal wealth and other implicit data. Also, a handful of data could be explicitly disclosed. Online gambling service providers might request data such

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population shall be considered as a risky group in terms of potential clients for the provision of financial services. However, this method provoked ethical polemics because areas where certain ethnic and racial groups lived were targeted as risky areas. As a consequence, citizens in targeted areas were denied financial services or were offered discriminatory prices and conditions. For that reason, a regulation adopted in the USA in the 1970s changed the rules and practice related to how agencies were to decide upon whether a client was suitable (or not) to receive financial services. However, redlining remains an example of how spatial data, combined with financially-related risks, might serve business interests by detecting existing risks among a certain group of citizens.
For more about redlining see: Investopedia, 'Redlining' <http://www.investopedia.com/terms/r/redlining.asp> accessed 6 November 2017.

[483] For more about the Local Government Organization see: <http://www.local.gov.uk/about> accessed 6 November 2017.

[484] Heather Wardle and others, 'Exploring area-based vulnerability to gambling-related harm: Developing the gambling-related harm risk index' (Local Government Association, City of Westminster, Manchester City Council, February 2016).

[485] Ibid 4.

[486] Westminster localized gambling risk index, <http://mapcase.geofutures.com/gamblingriskindex/westminster/> accessed 6 November 2017.

[487] Manchester localized gambling risk index, <http://mapcase.geofutures.com/gamblingriskindex/manchester/> accessed 6 November 2017.

as one's gender, professional occupation, a personal photo, information about family relationships and more. By combining data that is explicitly obtained and data which is implicitly gathered, online gambling service providers could generate more information about their customers.

The collection of online gamblers' personal data under the implementation of a data maximization strategy would include any available data regarding the socio-cultural and demographic features of Alice, Bob, and Carol. Therefore, even during the registration processes, a general hypothesis that Bob (who is single) is more prone to becoming a problem gambler than Alice and Carol (who are married) might be established.[488] Other data could contribute to their profiling and aggregation. Alice and Carol might be categorized within a group of highly educated gamblers between 40 to 50 years of age, whereas Bob might belong to a group of young gamblers (20 to 30 years olds) with a high school education. If the statistics show that men from certain countries are more prone to becoming problem gamblers (different assumptions might also be claimed depending on the statistics), then Alice, Bob, and Carol's genders would contribute to their profiling and considerations related to their gambling behavior, alongside their age and education level. Additional sub-categorization could be carried out if there is data available regarding a gambler's financial state (e.g. data about income, personal occupation or residential address). The aggregation of the available data might lead to Alice, Bob and Carol being classified as belonging to different groups of consumers, and thus the initial steps toward creating their profiles are taken. However, the knowledge inferred from the data gathered during the registration process about their gambling habits will be very general. Information about features related to gambling habits is drawn from the observation of broad social categories (e.g. gamblers between 20 and 30 years of age or gamblers in a given country), and the statistical differences between these categories are not always very large. For that reason, the knowledge obtained about Alice, Bob and Carol's gambling habits, which was gathered during the registration process, is unreliable in itself. For the sake of what was presented above about registration data and the implementation of strategies, it should be summarized that the implementation of a data maximization strategy does not constrain the possibilities available for profiling customers' gambling behavior. Contrastingly, a data minimization strategy deprives service providers from getting several sets of online gamblers' data, but reliably establishes whether consumers are authorized to gamble. For that reason, the implementation of a data minimization strategy hinders the possibility of getting socio-cultural, demographic and other data which can be used to make a distinction between Alice, Bob, and Carol. In contrast, data maximization strategies place gamblers' personal privacy at risk. The processing of large amounts of data collected during the registration process might be carried out for responsible gambling purposes, but could also be carried out for commercial communication purposes. Therefore, it would be better for the protection of gamblers if data processing were limited to only what is necessary for registration and for responsible gambling purposes. Thus, the possibility to use data collected for registration purposes for commercial communication purposes should be very constrained (or disabled). In order to achieve this, a data maximization strategy should be combined with Hoepman's proposal for a 'hide' strategy. Access to online gamblers' data should be restricted to those entities that process data for commercial communication purposes. Privacy enhancing technologies might obfuscate data, making it very difficult to use data for commercial communication purposes. At the same time, said data should remain accessible for responsible gambling purposes and registration needs.

[488] If we assume that all of them live in a country in which according to scientific findings prevalence of problem gamblers among singles is substantially higher then among married players.

4.2 Self-exclusion and time-out data

After the successful completion of a registration process, service providers ought to check whether an online gambler is self-excluded.[489] In addition to self-exclusion mechanisms, the EC Recommendation also proposes the implementation of 'time out mechanisms'.[490] These mechanisms should be at gamblers' disposal in order for them to suspend gambling activities for certain periods of time.

The EC recommendation invites EU Member States to ensure that online gambling service providers have "policies and procedures in place which facilitate interaction with players whenever their gambling behavior indicates a risk of the development of a gambling disorder".[491] However, the EC Recommendation does not include which specific measures should be implemented for this purpose, nor clarifies which data shall be processed for the indication of risks that may provoke a gambling disorder. The detection of problem gambling is a complex process, which not only depends on the quantity of the collected data, but also on how that data is processed. As concerns self-exclusion data, service providers are formally obliged to check whether a gambler is under a self-exclusion regime. Also, according to the EC Recommendation, commercial communications should not target self-excluded gamblers.[492] If a self-exclusion period has elapsed, an online player is allowed to gamble and to receive advertising appeals again.

Retaining data about previous self-exclusions might be considered as a possible contribution to the profiling of gamblers. Self-exclusion data provides evidence about a gambler's concerns and self-awareness of undesirable gambling behavior, its adverse consequences, and the need to impose gambling limitations on themselves. Therefore, a data maximization strategy would consider it important that a history of self-exclusion data be retained and used. However, one cannot implicitly equate a gambler to a professional with the capacity to make a professional diagnosis of problem gambling. Thus, an individual's decision to be excluded from gambling cannot be a necessary and sufficient diagnostic base for the determination of problem gambling once the self-exclusion period has elapsed. Nevertheless, gamblers have their reasons for self-exclusion, and a further observation of these reasons might indicate symptoms of problem gambling. Considering that previously self-excluded gamblers might be perceived as types of gamblers who do not present features of problem gambling, online gambling service providers could treat them as non-vulnerable types of gamblers and destroy their self-exclusion history. Obviously, destroying this data is a tactic that corresponds to a data minimization strategy that ultimately protects a gambler's personal privacy. Nevertheless, retaining data (as a tactic that corresponds to a data maximization strategy) could be combined with other strategies and tactics discernable from Hoepman's work, in order to contribute to the prevention of problem gambling, while seeking to preserve a gambler's personal privacy.

One of our characters, Bob, has self-excluded himself several times. However, it is uncertain whether he is a problem gambler, due to the lack of professional opinions on his state. Yet, according to his own feelings and opinion, Bob has experienced problems with his gambling behavior. If Bob's service provider aims to strengthen its responsible gambling measures, then Bob's history of self-exclusion might impose the need for a higher level of caution regarding his gambling behavior than for those

[489] Organization of self-exclusion mechanism is laid down in EC Recommendation, sec VII. The several different mechanisms of self-exclusion are presented in Chapter V, subsection 3.3.
[490] EC Recommendation, art 33(a).
[491] EC Recommendation, art 30.
[492] EC Recommendation, art 43.

gamblers who do not have self-exclusion records.[493] However, the data regarding Bob's self-exclusion history could be abstracted and grouped into a category of 'previously self-excluded gamblers'. Recognizing the fact that Bob has a long history of self-exclusion may be viewed as alarming, and the processing of other types of data that relate to him, for responsible gambling purposes, might be unnecessary. However, whilst potentially reaching a stage where the service provider ought to interact with Bob (and offer professional assistance), a certain level of doubt as to whether he is a problem gambler may nevertheless exist. Thus, in addition to self-exclusion data, other information, including data regarding Bob's gambling activities, could shed some light on Bob's gambling behavior and possibly underpin the existing suspicions that Bob's behavior should be placed under particular scrutiny due to a high probability of the existence of problem gambling. Nevertheless, a careful selection of the data that has to be processed for responsible gambling purposes is not only desirable for the protection of privacy, but also for the proper implementation of measures that serve to prevent problem gambling.

A standard feature of both data maximization and data minimization strategies is the checking of databases of self-excluded gamblers and gamblers on time-out. At first glance, it seems that both strategies create similar scenarios. However, the data minimization approach concerns the checking of databases so to allow consumers who are not excluded or under a time-out mechanism to gamble. A data maximization strategy, however, would include the processing of self-exclusion data for additional purposes. Therefore, under a data minimization scenario, and if we were to presume that Bob is currently not excluded, and that his data is not recorded in accessible self-exclusion databases, Bob would be viewed under the same light as Alice (who is a moderate gambler, with a high probability of never becoming subject to any form of gambling suspension). In contrast, in the scenario created by the implementation of a data maximization strategy, Bob would be distinguished from Alice as a customer requiring extra attention in order to prevent problem gambling.

4.3 Data gathered through self-assessment tests

After the completion of the registration process and the checking of available databases has been carried out (e.g. of the databases of self-excluded players and players on time-out), service providers decide upon whether gamblers are allowed to start gambling. However, despite the fact that the registration procedure and the checking of available databases may have confirmed that there are no obstacles in the way of providing gambling services to the individuals in question, online gambling operators could request that said consumers carry out a self-assessment test before they start gambling. Such testing could be requested regularly, on a weekly or monthly basis, or after several gambling sessions. This tool serves to contribute to a gambler's self-awareness about their gambling behavior. The EC Recommendation enshrines the requirement that self-assessment tests should be at gamblers' disposal as part of responsible gambling measures.[494] The test assesses how gambling impacts online gamblers' lives and informs (or warns) them about the potential consequences of gambling. Presenting a self-assessment test in the form of a questionnaire is an often-used methodological approach.[495] Such a

[493] Referring to several reports and studies carried out in Australia and Europe Griffiths and Auer emphasized the fact that between 20% and 30% of self-excluded gamblers are actually pathological gamblers. For more about see: Mark Griffiths and Michael Auer, 'Should Voluntary "Self-Exclusion" by Gamblers be used as a Proxy Measure for Problem Gambling?' (2016) 2 Addiction Medicine &Therapy <http://medcraveonline.com/MOJAMT/MOJAMT-02-00019.php> accessed 6 November 2017.

[494] EC Recommendation, art 4(c).

[495] Self-assessment tests are usually based on questionnaire with the set of prepared (or unprepared) answers

test processes information deriving from a gambler's perception of their gambling behavior.[496] The test could provide information that is difficult or impossible to collect via other means. For instance, real-time gambling behavioral data[497] cannot provide information about a gambler's motivations and expectations regarding gambling. A gambler's personal feelings about the time[498] and money[499] spent on gambling cannot be easily, nor reliably, detected without receiving a gambler's opinions about them. Also, it is possible to discern a gambler's perception as to what their friends and family members think about their gambling behavior if gamblers personally express their attitudes about such matters. Finally, the self-assessment test seeks to uncover how gamblers feel at certain points while gambling.[500] The evaluation of gamblers' opinions provides estimations as to whether and how an individual's gambling behavior influences the different spheres of their personal and private life (e.g. relationships, time, health and finances). Nevertheless, it has to be stressed that the self-assessment test serves to contribute to gamblers' informed choice by making them more aware of their gambling behavior. It is not a tool that is at the disposal of gambling operators to decide upon whether or not to allow the gambler to gamble.

Taking into consideration the fact that self-assessment tests are proposed by the EC Recommendation, self-assessment tests shall be considered as part of a data minimization strategy. However, the test could also be used as part of a data maximization strategy and employed for a broader set of purposes. A distinguishing factor that allows us to classify whether a self-assessment test is either within a data minimization or data maximization strategy is the test's purpose. As previously stressed, the aim of the self-assessment test is to assist gamblers in understanding the effects of their gambling behaviors. By implementing this measure as part of a data minimization strategy, online gambling service providers will not be able to use the data gained from self-assessment tests for any chosen purpose. Implementing (and combining) tactics for a data minimization strategy, such as excluding and destroying data, and tactics proposed within a 'hide' strategy (e.g. restricting access to data and data obfuscation), should make the data gathered through self-assessment tests unavailable to service providers, or available in aggregated form or in a form that limits service providers from using the data for any purpose whatsoever. In this way, the test remains as simply an opportunity that may contribute to a gambler's understanding of the current state of their gambling behavior and help them make their own decisions regarding further gambling activities.

Computer-based self-assessment tests structured in the form of a questionnaire and with prepared answers from which to select (which is the most common form of self-assessment test according to the author's hands-on experience) evaluates someone's behavior by considering the combinations of possible answers that can be selected. Thus, through applying the answers checked in the questionnaire, the gambler is evaluated and placed in one of several standardized categories of gamblers (e.g.

[496] For the examples of self-assessment tests see: GameCare, <https://gamtest.se/v3/gamcare> accessed 6 November2017; Gambling Help Online, <http://www.gamblinghelponline.org.au/take-a-step-forward/self-assessment/problem-gambling-severity-index-pgsi> accessed on 6 November 2017.

[497] For more about see the following subsection.

[498] e.g. duration of time spent on gambling considering personal expectations and plans; losing track of time while gambling; devotion of time to gambling when gamblers should do something else;

[499] e.g. whether they gamble with money that should have been used for something else; do they need to borrow money to gamble;

[500] e.g. whether gamblers feel embarrassed or bad when they lose money; whether they fell restless or irritated if they do not have opportunity to gamble;

moderate, risky and problem gamblers, including medically diagnosed problem gamblers, and transitional sub-categories that exist between these three general categories). This methodology deprives the evaluators from observing particular gambling behavior in a specific and potentially unique way. However, the aggregation of the surveyed gamblers, by placing them in categories that correspond with similar or the same features of their gambling behavior, could be very challenging. Obviously, Alice, Bob, and Carol are different types of gamblers and differ in their gambling behavior and in their issues with problem gambling. Due to the differences in their gambling behavior, it would be reasonable to assume that each of them would be placed under a different category of gamblers. However, it would be possible to place Bob in the same group as Alice or Carol if the category of gamblers that show similar symptoms of gambling behavior to Bob's does not exist. Obviously, this might generate inaccurate and unreliable data and create various kinds of false-negatives and false-positives (e.g. by placing Bob in the same group with Alice, he would be under a lesser duty of care than he deserves. In contrast, by grouping him in the same category of gamblers like Carol, he could be placed under an unjustifiably high level of scrutiny). Thus, it might be said that self-assessment tests are based on data selection (a tactic of data minimization strategies) and grouping data (a tactic of data aggregation strategies). However, the implementation of these tactics affects the proper recognition of particular gambling behavior and leads to a higher probability of the occurrence of false-negatives and false-positives than if a data maximization strategy were applied.

Whereas a data minimization strategy would deprive service providers from the possibility to collect new gambler-related data through self-assessment tests, the implementation of a data maximization strategy would use the test as one more opportunity for collecting new data and to process said data for profiling purposes. Namely, a data maximization strategy would seek to gain further insights from the data gathered by the self-assessment test and provide new details about service providers' customers. The answers to each of the test questions shall be available to online gambling service providers. The further cross-linking of data obtained from the tests with other available data might create better opportunities for profiling Alice, Bob and Carol's gambling behaviors, contrary to the implementation of a data minimization strategy. Thus, it is reasonable to assume that the implementation of a data maximization strategy concerning the data collected and generated by self-assessment tests is more beneficial for gambler protection than the implementation of a data minimization strategy. Several reasons underpin this claim. Firstly, the answers obtained through self-assessment tests could be validated by other available data (e.g. if Bob claimed that he is used to gambling around one hour per day, but real-time gambling behavior data demonstrates substantially different results, then the self-assessment of his gambling habits is probably inaccurate or, at the very least, questionable). Secondly, self-assessment tests are composed of a limited number of questions that do not cover certain aspects of gambling behavior that may be recognizable through the observation of other available data (e.g. the relation between wagered stakes and overall personal wealth). The cross-linking of available data with data collected through self-assessment tests might shed light on certain aspects of gambling behavior that are impossible to detect by either the self-assessment test or other available data alone. The third reason refers to the test's purpose, as contributing to gamblers' informed choice. It is quite important that the evaluation of the test reliably depicts the actual state of someone's gambling behavior. This is necessary in order to facilitate the sending of proper warnings to gamblers if it would be required. We should not forget that self-assessment tests should generate results based on answers that are, essentially, the opinions of the examined subjects themselves (online gamblers). Thus, it would be improper to carry out 'self-assessment tests' whose results are not based solely on gamblers' self-

assessment. Nevertheless, we should not exclude the use of third-party sources of data for the carrying out of self-assessment tests. Available data might be used to create personalized questions that could be used in self-assessment tests. For instance, a common test question is about the duration of gambling sessions. Time spent on gambling is a significant indicator of problem gambling. However, by observing real-time gambling behavioral data, one can easily determine the amount of time an individual has spent on gambling. Therefore, at first glance, asking Bob how much time he spent on gambling seems unnecessary. Nevertheless, already available data about the duration of Bob's gambling sessions might serve to present him with accurate information (how much time he spent on gambling) and as a step towards subsequently asking him for his opinion about said information (e.g. whether he considers the detected time as moderate or excessive)? By doing so, an evaluator could get Bob's opinion about something that is not possible to refute (the duration of his gambling sessions). Thus, it could be inferred that the isolation of self-assessment data (as the tactic proposed by Colesky, Hoepman and Hillen for implementing a data separation strategy) is counter-productive to the protection of gamblers, and that the application of these tactics negatively affects the implementation of responsible gambling measures.

Self-assessment tests have an important role to play in the implementation of responsible gambling principles. The strengthening of awareness among gamblers as concerns their gambling behavior can empower them to employ a self-controlled way of gambling that remains within the boundaries of what is considered a moderate way of gambling. However, gamblers prone to breaching the limits of moderate gambling are at risk of becoming problem gamblers. When this happens, the self-assessment test is probably an inadequate measure for supporting gamblers for at least for three reasons. Firstly, the examination methodology is insufficient for diagnosing problem gambling. Secondly, neither online gambling service providers nor online gamblers are experts that could carry out a proper diagnosis; professional assistance is necessary to provide a medical diagnosis of problem gambling. Finally, the reliability of the answers provided by problem gamblers about their gambling behavior is disputable, particularly where it concerns consumers who are close to, or have already crossed, the boundary of problematic gambling behavior.

4.4 Real-time gambling behavioral data

Real-time gambling behavioral data is a vital factor for the detection of gambling behavior. This type of data refers to information about the content that gamblers access, particularly data regarding which type of games they play (gamble on), the duration of their gambling sessions, the frequency of gambling, and the amount of funds spent on gambling.

Taking into account the EC Recommendation, particularly the part concerning players' activities and support[501], it should be underlined that operators shall have "policies and procedures in place which facilitate interaction with players whenever their gambling behavior indicates a risk of the development of a gambling disorder."[502] This provision binds service providers to react in a particular way when they detect the existence of problematic gambling behavior. However, it remains unclear whether online gambling service providers are obliged to develop and implement measures for the detection of risky behavior. Considering the large scope of real-time gambling behavioral data, the following part focuses on the most significant sub-groups of such data in accordance with the author's view on the matter.

[501] EC Recommendation, V part.
[502] EC Recommendation, art 30.

4.4.1 Preferred game

Online gambling markets contain a variety of different types of games. By observing real-time gambling behavioral data, online gambling service providers might detect a type of game that a gambler particularly prefers. It could be assumed that the number of visits a gambler makes, and the amount of time and money spent on, a particular game, demonstrates a gambler's preference towards that game. Clearly, this information is valuable for profiling purposes that might serve for commercial communication purposes. Marketing strategies tend to offer various products that may attract a consumer's attention. Therefore, offering a particular type of product to an individual (e.g. an online poker game) might be a wise marketing strategy. However, marketing the full diapason of products that the service provider has, and that might attract gamblers' attention, is also desirable, since exposing gamblers to new (types of) games might also lead them to expand or change their gambling preferences. Nevertheless, determining what matches a gambler's personal preferences is not an easy task. Different varieties of games feature numerous differentiating factors. Recognizing the factor that has a crucial influence in the attraction of a gambler's attention is challenging. Various yardsticks are used for the categorization of games and factors that highlight games. Despite the numerous different features games have, they could be categorized by their structural and situational factors.

Sidebar: Structural and situational factors

Structural and situational factors could be described as the features belonging to particular types of gambling. Situational characteristics refer to availability, accessibility and advertisement. Whereas the structural characteristics that receive the most focus are structural characteristics are event frequency, prize structure, and the prevalence of near misses. Situational characteristics have an effect on individuals by facilitating their initial contact with gambling, while structural characteristics affect individuals once they start gambling, by stimulating their regular and/or excessive gambling behavior.[503]

In order to examine whether online gambling shares the same situational and structural characteristics of gambling in general, McCormack and Griffiths identified 38 structural and 19 situational characteristics.[504] Notwithstanding the very limited empirical research that has been carried out about the impact of these characteristics on the vulnerability of gamblers,[505] McCormack and Griffiths claim that many structural elements of gambling have an important role in the acquisition, development and maintenance of gambling behavior. In these processes, they specifically emphasize event frequency, event duration, free practice games, multi-game opportunity, continuity of play, autoplay, bonus features, and payment, as well as characteristics specific to the internet, including online customer tracking, live remote wagering and multi-lingual sites.[506]

The detection of individuals most preferred type of game might implicitly disclose which structural and situational factors affect their gambling behavior. Gamblers may then be aggregated, not only by grouping them according to categories based on the preferred type of games, but also according to categories based on the specific characteristics of the preferred games. Griffiths and Auer consider the

[503] Meyer, Hayer and Griffiths (n 503) XXI.
[504] Abby McCormack and Mark Griffiths, 'A Scoping Study of the Structural and Situational Characteristics of Internet Gambling' (2013) 3 International Journal of Cyber Behavior Psychology and Learning 29.
[505] Ibid 45.
[506] Ibid.

types of games to be less relevant than the structural elements of games for recognizing risky ways of gambling.[507]

Let us assume that Alice prefers sports betting and Carol slot machines. This would reveal very different preferences regarding their gambling preferences, particularly in regard to event duration. Namely, some games may last for a very short amount of time (e.g. the duration of a spin of the roulette wheel lasts only a few seconds) whereas some others could go on for a considerably longer period of time (e.g. the event duration of a football game – and so in relation to sports betting on such a game - is usually about 2 hours). In relation to the event duration, event frequency[508] can also differ, and not only among different types of games but also among players (e.g. one player is able to wager a new stake soon after getting the result from the previous gambling event, whereas another needs more time to gamble again). What is evident from an insight into the data about our hypothetical characters and their preferred games is that Carol plays games whose structural characteristics are different from Alice's favorite games. Therefore, the detection of the structural and situational factors which shape Alice and Carol's gambling behavior could be valuable sources for profiling and could be used for commercial communication purposes. For instance, that Alice prefers sport betting (a type of gambling with a long event duration) implies that there is a higher probability that she would be interested in a lottery than Carol would. Like sports betting, the lottery is a type of game with a long duration period.

Data about the structural characteristics that are typical of certain types or sub-types of games might signal that by playing these games, gamblers accept a certain level of risk concerning the provocation of problem gambling. Despite various scientific limitations and a general lack of empirical research on the matter, some studies confirm this claim. Griffiths' findings show that games with a high event frequency, such as slot machines, are more likely to provoke problem gambling than those with a very low event frequency (such as lotteries).[509] In addition, Sevigny et al. confirmed that games with 'free practice games'[510] are more dangerous than those that do not offer such possibilities.[511] Therefore, if Alice prefers sports betting and Carol slot games, the assumption that Carol is at a higher risk of becoming a problem gambler than Alice would not be inaccurate.

Whereas Alice and Carol prefer very different type of games in terms of event duration, Bob is used to playing online poker. Poker, however, could be considered to have a variable event frequency and duration, and because of this Bob should be profiled differently from Alice and Carol. Also, Bob often plays poker at several tables simultaneously (this is another structural element known as multi-game opportunity). However, these characteristics of Bob's way of gambling might indicate a propensity to

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[507] Mark D. Griffiths and Michael Auer, 'The irrelevancy of game-type in the acquisition, development, and maintenance of problem gambling' (2012) 3 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3547280/> accessed 7 November 2017.

[508] Event frequency refers to how fast a gambler might gamble, get the result and gamble again. For more about event frequency see: McCormack and Griffiths (n 504) 33.

[509] Mark Griffiths, 'Psychobiology of the Near-Miss in Fruit Machine Gambling' (1991) 25 The Journal of Psychology 347.

[510] Games that offer free trials or 'game-for-fun' modes (according to the terminology adopted in Art. 42 of the EC Recommendation), offer the possibility of gambling without the use of real money. When playing these types of games, gamblers have two options: to keep gambling for fun (without wagering stakes that carry monetary value), or to start playing the same game by wagering stakes with monetary value.

[511] Serge Sévigny and others, 'Internet gambling: Misleading payout rates during the "demo" period' (2005) 21 Computers in Human Behavior 153.

use services offered by several operators (not only by one service provider that provides multi-game opportunities). Nevertheless, uncovering this fact is only possible if the relevant information is available from other service providers. For that purpose, a data linking strategy would have to be implemented.

As demonstrated, having information about an individual's preferred type of game is useful. Nevertheless, it is even more desirable to be familiar with particular aspects regarding the individual's engagement with their preferred game. When Bob plays online poker, he is used to engaging in multi-game opportunities. However, when he practices sports betting, he usually bets on football games. Nevertheless, information about the temporal aspects of his betting behavior, such as an indication that he bets during weekends (national league football games in European states are usually played on Saturdays and Sundays) or on Tuesdays and Wednesdays (days when the UEFA Champions league takes place) might help form the hypothesis that Bob prefers European football and/or betting on European football games. Both assumptions might be valuable for profiling purposes, particularly for commercial communication aims. Although these presumptions may be considered superficial, they could be used to improve the profiling process. However, the cross-linking of data increases the probability of the created profile of a gambler's habits matching their real behavior.

4.4.2 Financial data and material status

The EC Recommendation imposes an obligation to service providers to, firstly, prohibit the depositing of money beyond a monetary deposit limit that has been determined for a specified period of time, and secondly, prohibit gambling "(…) unless the player account has the necessary funds to cover the game or bet."[512] Additionally, service providers shall ensure that a gambler can receive "(…) default information alerts at regular intervals about winnings and losses during the game or bet (…)".[513] For these reasons, monitoring data regarding personal finances shall be an obligatory and integral part of a data minimization strategy. However, processing financial data for any additional purpose would exceed the boundaries of a data minimization strategy and can only be part of a scenario formed by the implementation of a data maximization strategy.

Data about financial transactions could reveal facts related to personal wealth. In general, it might be presumed that a gambler who wagers stakes of dozens of thousands of Euros per stake is richer than a gambler whose average stake is a few Euros. However, this attitude has to be taken with caution for at least two reasons. Firstly, by wagering 50,000EUR Bob might be using borrowed money (e.g. a bank loan or a family member's money). By doing so, he does not provide an accurate picture of his financial state. Secondly, problem gambling is related to relative wealth, not absolute wealth. If Bob was a billionaire, wagering 50,000EUR would not indicate a risky way of gambling. However, if Bob possessed 55,000EUR of personal capital, then wagering 50,000 EUR would be very risky behavior. Similarly, if Carol, who wagers 5EUR, had 20,000EUR in savings, her behavior would not indicate risky gambling behavior. However, if she was unemployed, had debts and three small children, then the wagering of 5EUR would be problematic. Personal wealth *per se* is not a relevant indicator of a risky way of gambling. The portion of wealth devoted to gambling is what is relevant. Regardless of the accuracy and completeness of the information about a gambler's personal wealth, it is a socio-cultural indicator that may serve for profiling an online gambler by categorizing him/her according to different groups of consumers. Despite this, data about an individual's personal wealth does not carry as much importance as data about the

[512] EC Recommendation, art 27.
[513] EC Recommendation, art 26.

financial transactions carried out when wagering a stake. This implies that the value of financial data for indicating risky ways of gambling depends on linking this data with other types of data.

Apart from revealing the amount of money devoted to wagering stakes, financial data is also concerned with financial losses and winnings. As explained above, the EC Recommendation imposes an obligation on service providers to regularly inform gamblers about their losses and winnings. This measure should assist gamblers in their decision making as concerns further gambling. We may assume that Alice, as a moderate gambler, would stop gambling if she received information telling her that her losses had reached her planned financial limit for gambling purposes. In contrast to Alice, however, Carol regularly exceeds her planned funds for gambling purposes.[514] Thus, there is one more distinctive factor between these gamblers and a reason to categorize them as different types of gamblers in relation to the risk of problem gambling. Nevertheless, service providers might compare the data about the amounts of wagered stakes, and losses and winnings in order to establish whether there is a relation between them and estimate whether the outcomes indicate a risky way of gambling. Therefore, information about winnings and losses may not only have a role in gamblers' decision-making processes, but also in the decision-making processes of service providers.

Whereas data about the amount of funds wagered by a gambler and of their losses/winnings explicitly reveal certain aspects of someone's financial capabilities, there also exists data that may implicitly indicate a gambler's personal wealth. Among other types of data, data about the type of software and/or hardware that gamblers use may indicate the status of their personal wealth. It might be presumed that gamblers that use very expensive devices for gambling are wealthier than those that use cheap devices and/or free software. Nevertheless, for those who use free software, it might be also inferred that due to ethical and political choices, as well as practical reasons concerning the usability of free software, users simply prefer them, whilst some people may buy expensive devices while economizing on food or clothes. However, among the dozens of various criteria for profiling, even this fact can be useful and might contribute to the profiling of online gamblers.

4.4.3 Observed behavioral markers of gambling habits

Sidebar: Behavioral markers of gambling behavior

The studies conducted by Braverman and Schafer[515] as well as Dragicevic, Tsogas and Kudic (hereinafter Dragicevic et al.)[516] analyze gamblers' behavior. As many others, these studies also seek to contribute to a better understanding of problem gambling. Along with the presence of certain similarities concerning their general research goal, both studies based their results on the observation of four behavioral markers: frequency, intensity, variability and trajectory.[517] Frequency refers to the total number of days in which a gambler is active (when a gambler gambles at least once per day) during a determined period of time (in both studies – 30 days). Intensity is

[514] Gambling operators may consider the amount of money that is deposited on a player's account as the player's planned amount for gambling, get information about planned funds via self-assessment tests, or request a gambler's explicit declaration about their plans regarding the funds that they will spend on gambling during a certain period of time.

[515] Julia Braverman and Howard J. Shaffer, 'How do gamblers start gambling: identifying behavioral markers for high-risk internet gambling' (2010) 22 European Journal of Public Health 273.

[516] Simo Dragicevic, George Tsogas and Aleksandar Kudic, 'Analysis of casino online gambling data in relation to behavioural risk markers for high-risk gambling and player protection' (2011) 11 International Gambling Studies, 377.

[517] These behavioral markers are developed by Braverman and Shaffer. Later, Dargicevic et al. use these markers, but changing the structure of 4th marker - trajectory.

the calculation of the total number of played games divided by frequency. Variability refers to the standard deviation of wagers. Lastly, trajectory is a complex statistical calculation obtained through the regression method. This marker demonstrates either a positive or a negative slope value that is an indicator of an increasing or a decreasing trend in the amount of funds gambled during the determined period of time.[518]

The conducted studies showed considerable differences in gambling habits among the researched sample of gamblers, who were classified into four clusters. The results of the studies demonstrated correlations between the behavioral markers on the one hand, and the level of risk factors for the provocation of problem gambling on the other. For instance, gamblers with a high frequency rate had a positive trajectory. This marker indicates an increasing risk of problem gambling. Gamblers with the lowest level of this marker spent less funds on gambling than others, with a downward trend evident in the amount of money they gambled. Also, gamblers with the highest intensity rate spent more than others.[519]

The studies carried out by Braverman and Schafer and Dragicevic et al. shed light on the relations between data that is generated by gamblers' behavior and the risk factors associated with the provocation of problem gambling. Whereas the structural elements of the preferred game might be used to assume certain features of someone's gambling behavior (by observing the characteristics of the game), behavioral markers are obtained through the processing of data that indicates how a gambler behaves regardless of the game in question. This sort of data is gathered only by service providers or third-parties acting on behalf of service providers. Therefore, self-assessments from gamblers about their own gambling behavior do not belong to this group of data.

The research presented above showed that several temporal factors such as the time spent on gambling, or the incidence and frequency of gambling during a certain period, might evidence risky ways of gambling. However, the most indicative marker of problem gambling is known as the act of chasing losses.[520] To find out whether a gambler chases his/her own losses, one would have to particularly focus on the frequency and intensity of their gambling. Nevertheless, such data has to be observed in correlation with the amount of money spent on gambling and the structural elements of the game (particularly the event duration and frequency). The following examples show how an observation of these parameters might assist in the detection of risky ways of gambling and chasing losses.

4.4.3.1 Example 1

Carol has been gambling at the slot machines for about 6 hours. Frequency, as a behavioral marker of gambling habits created by Braverman and Schafer, refers to this temporal aspect of gambling. However, to claim that gambling for 6 hours in a row is Carol's gambling frequency would not be appropriate. The creators of this behavioral marker of gambling habits determined frequency as being concerned with the number of days in which a gambler is active within a certain period of time (e.g. in a month). Nevertheless, the temporal indicator of this example (6 hours) could be used for the calculation of gambling intensity. Carol's online gambling service provider is able to detect that she played 4320 games in those 6 hours. Bearing these parameters in mind, it could be calculated that her gambling intensity measured 12 games per minute. In other words, the event frequency (taking into account the explanation of the event frequency as a structural factor of the game, as explained in subsection 4.4.1) is 5 seconds per game. Nevertheless, the event duration of slot games is also very short, with slot games usually lasting no longer than a few seconds. Therefore, the duration of Carol's unique gambling session

[518] Dragicevic, Tsogas and Kudic (n 516) 381-82.
[519] Ibid 382-84.
[520] More about gambling-related harms is in Chapter III, section 3.

might indicate a risky way of gambling (like the frequency in the studies carried out by Dragicevic et al.). This is an inconclusive assumption. However, a look at the data about the funds she spent on gambling might reveal another dimension of her gambling behavior. If she spent all of the money that she primarily deposited, and resorted to additional funds several times during those 6 hours of gambling, then the assumption that Carol was chasing her losses would not be farfetched. If Carol was continuously spending increasing amounts of money during this unique, but very intense, gambling session, then it could be assumed that she sought to recover her previous losses. In a contrasting hypothetical situation where her financial balance is positive, an assumption as to her chasing losses could not be established. However, her not chasing losses would not exclude the possibility of Carol having a propensity toward risky ways of gambling. Her very long and intensive gambling session points towards such a propensity.

4.4.3.2 Example 2

Bob was betting on football games. The betting activities took him approximately 3 hours. During this period he placed 20 bets. Thus, the intensity of Bob's betting activities was a little bit less than 7 bets per hour (exactly 6.6 bets per hour). Considering that the event duration of a football game is about 2 hours, but that the event frequency in this case is 1 bet per around 9 minutes on average, Bob probably bet on several games at once or engaged in in-play betting. What does this mean for an analysis of his gambling behavior? Taking into consideration that the event duration for betting on football games is about 2 hours, there is no reason to assume that Bob's gambling behavior reflects an instance of chasing losses. Practically speaking, Bob cannot gamble on 20 soccer games (in only 3 hours) by placing every subsequent bet after being informed of the negative result of the previous one. He probably placed several bets at once or practiced in-play betting. However, this assertion should not be taken for granted. Namely, in-play betting provides opportunities to bet on particular details from the game (e.g. when and who will score the first, second or third goal, who will get a yellow or red card, who will run the longest distance in the game, or when and who will be awarded the first free kick) all while the game is in progress. Therefore, there exists the possibility that Bob used in-play betting to gamble on various unpredictable factors concerning not only certain outcomes, but also their durations. For instance, if the game was finished with the result being 0:0, then the event duration regarding betting on the first goal scorer is identical to betting on the final result. However, if the first goal is scored in the 10th minute of the game, the situation concerning the event duration will be considerably different. Furthermore, Bob could have placed bets on events that certainly happened (e.g. the result in 10th minute of the game, or the result at half-time). Thus, there is the possibility (at least in theory) that all of 20 events were realized in a consecutive manner, where the decision about each of the subsequent bets was influenced by the results affecting already placed (and realized) bets. This hypothetical scenario could indicate the possible existence of a sequence of chasing losses. Like in Carol's example, data about the funds spent on gambling could reveal whether Bob really chased losses and behaved in a way that neglected his planned limits for gambling (e.g. by setting up new deposits for gambling), and would shed some additionally light on his gambling behavior.

4.4.3.3 Example 3

Our third example looks at Alice's gambling session. Like Bob she was betting on the football game. However, she placed only one bet on the game. Obviously, this situation is featured by the identical numerical values of the observed markers and structural factors in Bob's scenario. The duration of her gambling session is identical with the event duration (2 hours) and the intensity is one game per two

hours. This data is obviously not alarming and cannot indicate that Alice was chasing losses. Moreover, the availability of Alice's financial data would not change the assumption that Alice did not chase losses on this occasion. However, financial data may still indicate that Alice engaged in a risky way of gambling if it reveals that she spent a substantial portion of her personal wealth by betting on one football game.

4.4.4 Concluding remarks about real-time gambling behavioral data

The presented facts about real-time gambling behavioral data demonstrated how the observation of several pieces of data might form suspicions and presumptions about risky ways of gambling and the existence of symptoms that indicate problem gambling. The examples included the cross-linking of data. Use of real-time gambling behavioral data includes processing various kinds of data whose combination yields information about personal preferences. Additionally, considering the methodological settings for distinguishing between data minimization and data maximization strategies, and a lack of clarity as to whether online gambling service providers are obliged to process real-time gambling behavioral data for responsible gambling purposes, observing real-time gambling behavioral data in order to detect risky ways of gambling corresponds to the implementation of a data maximization strategy. However, what is presented above indicates a cross-linking of various information. Therefore, it would be reasonable to question why such a cross-linking of data is presented as part of a data maximization strategy and not as part of a data linking strategy. The reason for this is that all the data discussed above is available (or might be available) to the online gambling service provider itself, as the data controller (except where specifically noted that data linking would be required for certain additional types of data analysis). Therefore, to detect gamblers who may be at risk, the processing of real-time gambling behavioral data might be carried out without the implementation of a data linking strategy and corresponding tactics. Real-time gambling behavioral data might remain isolated and inaccessible to third persons, but its processing may still be highly valuable for responsible gambling purposes.

By observing real-time gambling behavioral data, online gambling service providers could implicitly obtain new data about their customers. The hypothetical real-time gambling behavioral data presented above contains the presumption that each of the characters (Alice, Bob and Carol) only gambled using the services offered by one operator. In practice, it is perfectly possible for Bob to play several games at once (e.g. while waiting for the result of a football game on which he placed a bet, he may play a slot machine game offered by another service provider). The availability of all this data is crucial for the creation of reliable data about Bob's actual gambling behavior. Therefore, the more sources accessible, the higher the probability for creating reliable data regarding Bob's gambling behavior. This could be facilitated by obtaining data from other service providers, made possible by implementing a data linking strategy (as will be discussed below in section 5).

4.5 Databases of blacklisted gamblers

Gambling service providers could establish and manage databases of blacklisted consumers. Having these types of databases as part of a responsible gambling approach, is not something that is proposed by the EC Recommendation and thus, should only be considered as an integral component of a data maximization strategy. These kinds of databases may contain lists of gamblers that, for various reasons, are regarded as *persona non grata*. Access to gambling services can be prohibited to consumers who are found cheating, breaking gambling rules or who have committed a certain offense or crime related to gambling (e.g. money laundering through gambling). Gambling services might, moreover, be formally reserved for non-professional gamblers. Therefore, customers who gamble for non-recreational

purposes might be blocked and prohibited from any further gambling offers. Blacklists may additionally contain data identifying those gamblers that are automatically excluded from gambling activities by law. The law could regulate that individuals who receive financial or legal aid or are undischarged bankrupt, should be prohibited from gambling.

Concerning the prevention of problem gambling, blacklists could contain information about gamblers whose gambling behavior is considered as medically diagnosed problem gambling. Gambling prohibitions imposed on this type of consumer are quite desirable. However, the implementation of such measures might be problematic. Online gambling service providers are not able to determine whether a consumer is a problem gambler or not. Therefore, their suspicions are just presumptions that would have to be confirmed by experts. The situation would be different if blacklists contained data on confirmed problem gamblers. For instance, the law could enshrine an obligation that stipulates that data concerning diagnosed problem gamblers shall be available to all gambling service providers. Nevertheless, data about medically diagnosed problem gambling is medical data, and for that reason, requires a different kind of protection than data that does not belong to a special category of personal data.[521]

Apart from behavior that indicates problem gambling, there are other types of behavior that are considered risky. It is entirely possible for gambling service providers to offer both online and offline gambling services. Aggressiveness, drunkenness, and difficulties in controlling one's impulses are other reasons for why a gambler may be marked as inadmissible and prohibited from entering offline gambling premises. Furthermore, gamblers that are detected as risky gamblers, due to their extreme way of spending time and money on gambling in the offline environment, might be prohibited from online gambling services too. This hypothesis is based on the presumption that a gambler whose offline gambling behavior is already identified as risky and that could potentially develop into problem gambling, is likely to gamble in the same way in the online environment.

A database of blacklisted gamblers is a source of data whose processing belongs to the implementation of a data maximization strategy. However, as it was stressed, databases of blacklisted gamblers may not only contain information about problem gamblers, but also information about gamblers whose behavior is problematic for reasons that do not affect (or potentially affect) a gambler's health. Thus, indications as to the reasons why a particular gambler is blacklisted are quite useful and, moreover, necessary pieces of information. For responsible gambling purposes, and for the prevention of problem gambling, processing all the information available in the databases of blacklisted gamblers is excessive and unnecessary. An indication as to why a particular gambler is on the blacklist would assist in the identification of individuals who could, potentially, become problem gamblers and help distinguish them from other problematic groups of gamblers.

4.6 Conclusion on data maximization vs. data minimization strategies

From what has been presented so far, one could conclude that the implementation of a data maximization strategy can be both beneficial and detrimental to the prevention of problem gambling. On the one hand, it is a valuable approach for commercial communication purposes. On the other, it could have an incomparable function in the prevention of problem gambling. It could be claimed that if the data is rich enough, online gambling service providers would be able to make accurate distinctions

[521] More about in this chapter, subsection 5.3 and discussion part (section 6)

between Alice, Bob and Carol. In other words, the processing of more data should produce more sophisticated profiling results that, furthermore, point out the main features as well as the differences between Alice, Bob and Carol's gambling behaviors. This way, the gambling operator may go on to form personalized commercial communications that would not breach responsible gambling standards. For instance, the implementation of a data maximization strategy should create commercial communication mechanism that would allow Alice to receive as much personalized advertising appeals as possible, prohibit supplying Carol with advertising that would trigger her and lead her to gamble, and that would send only some ads to Bob, namely those that would not push him over the edge and away from a moderate way of gambling.

This section presented several ways for processing online gamblers' personal data. The first was through the registration process. This process can be completed regardless of whether a data maximization or data minimization strategy is implemented. However, the effects are different. In general, by implementing a data maximization strategy, gambling service providers obtain a larger scope of data that might be used for more than what registration requires, as well as for commercial communication purposes and purposes that serve to prevent problem gambling. The implementation of a data maximization strategy serves to process a larger scope of data than is laid down by the EC Recommendation. This strategy can be combined with tactics from privacy preserving strategies so the processing of data remains beneficial in terms of maintaining gamblers' privacy, but also to ensure that the data is only processed for pro-protective purposes.

Processing real-time gambling behavioral data is only possible if a data maximization strategy is applied. Real-time gambling behavioral data might have an important role to play in detecting gamblers at risk. However, current scientific findings and the practical use of tools that process real-time data to detect gamblers at risk, have not been able to reliably determine which data ought to be processed and which data is less relevant for the detection of particular gambling behavior. Thus, it is very difficult to propose the implementation of tactics that would constrain the processing of real-time gambling behavioral data without potentially hindering the effective detection of gamblers at risk. As concerns self-exclusion mechanisms, this responsible gambling tool has been implemented in practice for a while. Therefore, there is room for the improvement of the practice, which would include processing self-exclusion data beyond the initial processing purpose, but that would take into account the need to preserve the privacy of gamblers and limit possibilities for the misuse of such data (that may ultimately lead toward a worsening of a gambler's gambling behavior).

Whereas the processing of real-time gambling behavioral data cannot be an integral part of a data minimization strategy, the processing of data from self-assessment tests belongs to the implementation of a data minimization strategy. The self-assessment test is an important protective mechanism that contributes to a gambler's informed choice. Any use of this tool for other purposes, including those that may benefit gambler protection, exceeds the limits of the implementation of a data minimization strategy and transform this mechanism into another kind of protective tool. Therefore, the implementation of a data minimization strategy makes self-assessment tests less useful as concerns the protection of gamblers. The application of a data maximization strategy that is combined with tactics from privacy preserving strategies might serve the purpose of a responsible gambling approach. Nevertheless, the analysis of self-assessment tests pointed out that the pure implementation of a data maximization strategy considerably contributes to the protection of gamblers (whilst also creating risks for the misuse of data and its processing for commercial communication purposes). Thus, tactics from

privacy preserving strategies should be implemented to enable a processing of data that is limited to serving the needs of a responsible gambling approach. Finally, processing blacklisted gambler data is only possible under a data maximization strategy. There are numerous reasons for why service providers might prohibit their consumers from accessing their gambling services. Blacklists are often used in practice, but their operation is mainly self-regulated. Thus, it is quite difficult to strictly determine which data should (and should not) be processed for blacklisting purposes. However, as long as blacklists serve to protect gamblers, they will belong to a responsible gambling approach.

The primary factor that forms the difference between the implementation of data maximization and data minimization strategies is the scope of the processed data, both in terms of quantity and in terms of the type of data that is processed. The presented facts in this section showed that the extent of the processed data significantly influences the possibilities for combining data and extracting new information (and data). However, along with the scope of the processed data, the purpose for processing said data also determines whether either a data maximization or data minimization strategy is implemented. The opportunities to generate new information about gambling behavior, by using data that has been gathered before, during or after gambling activities, are comprehensive and potentially limitless. It has been shown that data minimization strategies serve as a guarantee that ensures a non-excessive handling of data. However, they eliminate (or at least decrease) the possibilities for finding out more about risky gambling, and for gaining information that may have a crucial role in the prevention of problem gambling. In the pursuit of such a goal, a data maximization strategy or data linking strategy will be far more effective. However, this claim should be taken with caution. Strategies based on an excessive processing of data should only be implemented when an overall assessment of their pros and cons has been made, and in light of data protection law. Therefore, we will focus more on the data linking (and data separation) strategy in the following section, before a legal analysis is presented in the following chapter.

5 Data linking vs data separation

The Resolution on Online Gambling in The Internal Market adopted by the European Parliament on the 10th of September 2013[522] invited EU Member States to increase the interoperability and accessibility of online gambler data in order to create "a common system for identifying players" and "self-exclusion mechanisms that include, *inter alia*, personal time and money limits applicable throughout the EU".[523] In addition, this document recommends the introduction of "uniform, pan-European common security standards for electronic identification and cross border e-verification services" that will serve "for registration and identification procedures to be streamlined and made more efficient, notably in order to ensure efficient identification mechanisms and to prevent multiple accounts per player and access by minors to online gambling websites".[524] In line with the Resolution's aims, the EC Recommendation encourages Member States to establish a national registry of self-excluded players[525] and "to facilitate access to national registers, databases or other official documents against which operators should verify

[522] European Parliament, Resolution of 10 September 2013 on Online Gambling in The Internal Market, (2012/2322(INI)), 10 September 2013.
[523] Ibid, art 34.
[524] Ibid, art 19.
[525] EC Recommendation, art 37.

the identity details."[526] Thus, political and legal documents that have been announced and adopted by EU bodies, in essence, stimulate the cross-linking of data for the identification of gamblers. The regulatory initiative shaped through these documents emphasizes the importance of the associability and, in particular, the interoperability of data for the protection of online gamblers. Interoperability between databases forms the essence of data linking strategies. However, the documents adopted in the EU stipulate a one-dimensional linking of data. Linking data from various self-exclusion databases may improve gambler protection, as well as lead to a harmonized or unified system of identification that is implementable across the whole EU. However, there is a second dimension to data linking. This dimension concerns the linking of various kinds of gambler data (e.g. linking self-exclusion data with real-time gambling behavioral data, or even linking real-time gambling behavioral data with non-gambling related data that may reveal novel features of gambling habits, or assist in the interpretation of the behavioral data in question). Because of this, the main trait of the antipode to Hoepman's data separation strategy – data linking – is, in the context of this research, the cross-linking and connecting of all data that may contribute to both commercial communication purposes and the protection of gamblers. The following parts present scenarios that may be provoked by the implementation of either data linking or data separation strategies.

As it was stressed in the subsection about the contours of Hoepman's strategies[527], a data linking strategy is implemented when several sources of data, which are under the control of two or more different data controllers, are connected. The following subsections give particular attention to the following data:

- Self-exclusion data
- Data about problem gamblers controlled by professional organizations
- Marketing tools and databases controlled by online gambling service providers and subjects not involved in the gambling business
- Data extracted from social media

The following subsections seek to explain how gambling-related data that is controlled by various online gambling service providers and professional organizations (self-exclusion data, data about problem gamblers and marketing data) as well as non-gambling related data (marketing data, data extracted from social media and geo-location data), could be used to detect gambling-related preferences and become useful for commercial communication and responsible gambling purposes. It has to be emphasized that the presentations are based on two explanatory grounds. Firstly, how the implementation of a data linking strategy can bring new data that is useful for a certain purpose (e.g. in cases where service providers collect self-exclusion data from databases controlled by other service providers or subjects) is explained. Secondly, an explanation will be provided as to how the implementation of a data linking strategy might be used for revealing new, implicit information related to gambling behavior. The second ground is particularly important for making the distinction between an implementation of a data linking strategy and an implementation of a data maximization strategy. We have already addressed how the linking of data under the control of an online gambling service provider, for the purposes of getting new information about gambling-related behavior, belongs to the

[526] EC Recommendation, art 18.
[527] See the subsection 3.2.

implementation of a data maximization strategy,[528] and that collecting different data which is under the control of two or more entities belongs to the implementation of a data linking strategy. However, the implementation of a data linking strategy requires the proper identification of online gamblers. Thus, the first sub-section sheds light on issues related to the identification of gamblers. The following subsections explain how to collect new data by implementing a data linking strategy, but also how the processing of new data, particularly when linked with already collected data, generates new information about gambling behavior.

5.1 About the identification of online gamblers

Data linking could be carried out during various phases of a gambling activity or even before gambling starts. Checking someone's capability and permissibility to gamble is desirable from the perspective of gambler protection. It can be assumed that checking self-exclusion databases, as well as other available databases that contain data on vulnerable gamblers, during the registration process (and before its brought to its completion) might contribute to the protection of gamblers. Thereby, linking gambler-related data improves interoperability between different databases and in that way, creates opportunities for developing a more accurate picture of someone's gambling behavior. However, exchanging data is quite challenging, due to various reasons. Data controllers should be ready to enable a third person with access to the database that they control. Readiness does not refer only to a data controller's will, but also to the prepared technical infrastructure that ought to facilitate effective data exchange. One of the most demanding technical factors regarding the exchange of gamblers' data is how online gamblers are identified.

A proper and robust identification of gamblers is required for the effective application of various services and mechanisms related to the provision of online gambling services. For instance, self-exclusion mechanisms cannot be properly applied if an identification of the self-excluded gambler is not possible. Let us imagine that Bob often excludes himself. In accordance with the purpose of self-exclusion, a service provider has to link Bob's account to a valid request to be prohibited from gambling for a determined period of time. The scope of the processed data might influence the robustness of the identification system. We may presume that processing more data contributes to the reliability of the identification system. Nevertheless, this presumption does not confirm the rule for all possible cases. A service provider might collect an enormous amount of Bob's personal data and process it for various goals. However, for the implementation of self-exclusion mechanisms, it is not necessary to process a large volume of personal data. A service provider ought to make use of a proper identifier that will be sufficient for distiguishing Bob from other gamblers and, afterwards, to enforce his request to be excluded. The same applies for the implementation other mechanisms (e.g. time-out mechanisms) that require the identification of gamblers.

Data linking ought to enable the exchange of online gambler data that has been processed by different subjects. It is quite possible that the data controllers involved in such an exchange are established and based in different national states, licensed under different national licensing systems and provide different sorts of services. These factors might create problems for the exchange and linking of data. Namely, regulations regarding the processing of gamblers' personal data for a particular purpose might differ from one national member state to the next. As a consequence, the identification of online gamblers emerges as a problem that is not that easy to handle. Let us imagine that an online gambling

[528] See the subsection 4.4.4.

service provider based in the United Kingdom requests a particular set of data in order to register Bob. Bob, however, might have already self-excluded himself from gambling services offered by an operator based in Malta and asked for professional medical assistance for problem gambling in Spain. It is quite possible that each of the three subjects involved in this scenario processed different data from Bob and did so for their own purposes. This may result in difficulties regarding the exchange of Bob's data and thus his identification.

To put it more illustratively, we should take a look at the table 5 (below). This table present part of a database that contains the personal data of three hypothetical online gamblers registered at the hypothetical online gambling service provider 'BetZed'. The yellow column houses the unique authentication codes for each of the players, whose personal data is given in the rows (the green row contains Bob's personal data). The authentication code is an administrative number used by BetZed to organize its own database. Let us assume that the department in charge of the registration procedure determines the authentication code for each BetZed consumer. Thus, a unique authentication code is attached to every registered consumer at BetZed. If Bob decided to self-exclude himself, then the responsible gambling department should get Bob's request. The responsible gambling department may only receive information that a gambler with authentication code 54DBrQ has requested to be self-excluded. In this case, Bob's identity would not be revealed to the responsible gambling department, but a self-initiated prohibition from gambling would nevertheless be enforced. In other words, every time the authentication code 54DBrQ is used in order to gamble, the responsible gambling department will react, prohibiting said action. However, it is also possible that the full package of Bob's data (all available data) is disclosed to enforce the self-exclusion mechanism. A less privacy-protective approach might be used for the implementation of other measures that belong to a responsible gambling approach.[529] Nevertheless, the authentication code would be unsatisfactory data for an external agent (e.g. another online gambling service provider) who intends to find out more about Bob's self-exclusion status.

Bob could be identified by observing various available pieces of data (e.g. his personal name and surname, address, and date of birth). Yet, only Bob's personal number is unique. Notwithstanding the very low probability of such an instance, it is nevertheless possible that there are two persons with the same personal name and surname who live at the same address and have the same phone number. However, it is not possible for two persons to have the same personal number. Therefore, it seems that only personal numbers provide a reliable way to identify a person. Nevertheless, the application of personal numbers for identification purposes might have to overcome several obstacles in practice.

[529] E.g. for determining socio-cultural and demographic features of area where Bob lives that would be further used for additional profiling purposes. More about presented in the subsection 4.1.

Table 5 - Database with personal data of three hypothetical online gamblers

Authentication code	Personal number	Personal name	Personal surname	Address	Date of Birth	Phone number
…		…		…	…	…
54DBrQ	5355.96.081	Bob	Jones	Hendrik de Keijserstraat, Tilburg, NED	11/08/1981	+31/612345678
56984g	GIOPIE68P65Z404U	Pietro	Giorgo	Via San Vitale 9, Bologna, ITA	23/12/1968	+39/65432112
785ROEe	1205980730029	Bratislav	Djuric	Zmaja od Nocaja 2, Nis, SER	12/05/1980	+381/63456123
		…		…	…	

A 'personal number' refers to a national identification number. Every country has its own system for creating personal numbers for their citizens and permanent residents. If we assume that Bob is a Dutch citizen, he would have his own personal number (known as a 'burgerservicenummer'[530]) issued by the Dutch authorities. However, if he lives in Italy, the Italian authorities would have issued him with an Italian personal number (known as a 'codice fiscale'[531]). Bob could use either his 'burgerservicenummer' of 'codice fiscale' during the registration process (it usually depends on the service providers' requirements and the relevant national gambling legislation). However, the technique for calculating and creating national identification numbers differs between countries. In other words, a national personal number is a proper identifier in the national state that issued the number. It is difficult to assume that any online gambling service provider or subject involved in gambling-related matters could, in any circumstance, identify Bob via his personal number alone. Dutch online gambling service providers could be able to identify Bob by his 'burgerservicenummer', but it is disputable whether this opportunity is at the disposal of service providers that are based in another EU Member State.[532] Furthermore, according to the EC Recommendation, one's personal number is not supposed to be processed for registration purposes. Hence, the processing of an individual's personal number for registration purposes is part of the implementation of a data maximization strategy. Then again, considering the possibility for a player to access gambling services in several different countries, then he/she has to register according to the national rules applicable to said services (or rules imposed by an operator in the absence of national standards). Bob, who registered himself with three online gambling service providers, each one based in a different country, carried out three different registration procedures. Apart from the scope of the processed data, the relevant implementing technology may

[530] For more information see: <https://www.rijksoverheid.nl/onderwerpen/persoonsgegevens/vraag-en-antwoord/wat-is-het-burgerservicenummer-bsn> accessed 9 November 2017.
[531] For more information see: http://www.agenziaentrate.gov.it/wps/content/Nsilib/Nsi/Home/CosaDeviFare/Richiedere/Codice+fiscale+e+tessera+sanitaria/Richiesta+TS_CF/SchedaI/Informazioni+codificazione+pf/ accessed 9 November 2017.
[532] The infrastructure for cross-border e-Identification in EU is still developing. It is expected to be operative after September 2018. For more about see: European Commission, 'e-Identification' <https://ec.europa.eu/digital-single-market/en/e-identification> accessed 9 November 2017.

also differ from one country to another.[533] As an outcome, Bob not only received three different personal accounts, but three central hubs that he may use to build his identity as an online gambler (or identities, as several online gamblers). Observing all of his 'identities' by linking the data from all of Bob's central hubs and other databases would be desirable if one wanted to find out more about his gambling behavior.

A centralized and harmonized online registration system would provide a unique authentication tool for Bob, which he could use to access various online gambling service providers (e.g. in all EU Member States). In such a hypothetical case, there would be no need to carry out the registration procedure for each service provider. Only one entity in charge of the processing of personal data for registration purposes would authorize customers to gamble and verify their personal data. As a result, a unique identification mechanism could be formed which would simplify the reliable identification of online gamblers. Consequently, access to service providers and identification of gamblers for responsible gambling purposes would be less complex. This is particularly significant for the effective implementation of self-exclusion mechanisms.

5.2 Self-exclusion mechanisms

Chapter V proposed four different ways for organizing self-exclusion mechanisms.[534] These self-exclusion mechanisms were founded on two dimensions: the horizontal dimension, which concerns data, and the vertical dimension, which addresses the organizational and regulatory features of said mechanisms. In what has been presented so far, two aspects regarding the protection of self-excluded gamblers have been advanced as being of crucial importance. Firstly, a reliable and robust identification process increases the probability that online gamblers will not be able to gamble during the self-exclusion period. The second aspect is associated to the first and stands for the interoperability of self-exclusion data as a factor that reduces the amount of possibilities self-excluded gamblers have to access gambling services. The observation of the presented structure of self-exclusion mechanisms (as well as their advantages and drawbacks) suggests that the implementation of a data linking strategy is necessary for the proper functioning of this responsible gambling measure. Excluding horizontally disconnected and vertically unregulated systems, all other self-exclusion systems are founded on the linking of gamblers' personal data. Hence, service providers have to exchange data among themselves or with central databases. The implementation of a data linking strategy refers to the application of all vertically regulated mechanisms, as well as the application of vertically unregulated, but horizontally connected self-exclusion mechanisms.

Service providers that do not exchange data with third parties (usually other online gambling service providers) base their operation of self-exclusion mechanisms on a data separation strategy. They isolate data and make it unavailable to third parties. The distribution of the data they process is only for internal purposes and between internal departments. The main drawback of this system is outlined in the Calvert v. William Hill case.[535] Therefore, Bob, who self-excluded himself by using this type of self-

[533] We may even presume that the technology used differs from one service provider to another. However, during the licensing procedure, all of the software that a candidate for becoming an online gambling service provider intends to use for its operations, has to be certified by the national certification body. Therefore, it might be claimed that service providers formally licensed in one country operate with technology whose characteristics are harmonized and satisfy certain standards.

[534] See Chapter V, subsection 3.3.

[535] See Chapter V, subsection 3.3.1.

exclusion mechanism, has other gambling opportunities that are still available to him on the market. This system offers Bob a considerable amount of protection if he tries to gamble by only using the services offered by one particular service provider (where he excluded himself). However, it is very difficult to track Bob's gambling activities in order to reliably determine whether he gambles by only using the services offered by a particular operator or through using services offered by several operators. Therefore, the exchanging of data between gambling service providers is preferable and boosts the protection of gamblers.

The implementation of a data linking strategy, which seeks to link as much data as possible, results in a one-stop shop approach in regard to self-exclusion. In other words, by excluding himself from one place (e.g. from the services offered by a particular service provider or by registering in a central database of self-excluded players) Bob actually reduces the amount of opportunities available to him for accessing gambling services offered by other operators. Operators that exchange self-exclusion data ought to limit Bob's opportunities to gamble. Nevertheless, it is almost impossible totally remove every possible opportunity for Bob to gamble. This would only be possible if a data linking strategy were implemented among all available service providers in all the available markets. If all of the service providers that Bob could possibly access were to exchange self-exclusion data (regardless of their place of establishment or legality), then Bob's chances of gambling during his self-exclusion period would be eliminated. However, one central mechanism that covers all available service providers does not exist and it is hard to believe that one will be established in the near future, due to the EU Member States' right to exclusively regulate gambling-related activities at the national level.[536]

The discussion on vertically regulated self-exclusion mechanisms demonstrated that this sort of mechanism would not include illegal service providers.[537] This may be different with vertically unregulated systems. They might accept illegal service providers that satisfy certain criteria as determined by their self-regulation standards (for that reason it might be claimed that even vertically unregulated systems implement a data separation strategy due to the fact that they do not share data with any service provider on the market). Therefore, one of the distinctive factors among different self-exclusion mechanisms concerns the legality of the service providers included in a particular mechanism. A self-exclusion mechanism based on self-regulation might include non-licensed online gambling service providers. Bearing in mind how developed the black market is in respect to the provision of online gambling services, the inclusion of non-licensed gambling operators in a self-exclusion program might be taken as a contributory factor for enhancing gamblers' protection. In vertically regulated systems, Bob (or any other player) is only able to exclude himself from the games offered by licensed service providers in a state or group of states (in cases involving international or supranational organizations). As a matter of fact, vertically regulated mechanisms limit the possibilities available for data linking and oblige the licensed service providers in a certain state (or states) to manage their actions, including those necessary for the proper functioning of their self-exclusion mechanism, and in a manner that complies with mandatory law. Therefore, it is hardly likely that states would allow (and stipulate) any sort of cooperation between legal persons, established in accordance with national legislation, and illegal subjects. The legality (and illegality) of online gambling service providers has an impact on the implementation of privacy preserving strategies. Service providers might claim that they implement tactics that should hinder a processing of self-exclusion data that goes beyond responsible gambling

[536] See Chapter V, subsection 3.3.
[537] See Chapter V, subsection 3.3.

purposes. However, the authority of a state and its controlling mechanisms should, in practice, obligate service providers to really implement what is necessary for both the protection of gamblers' privacy and the prevention of problem gambling. For these reasons, the providing of online gambling services by licensed providers could be considered as a guarantee that process-oriented strategies such as 'control and enforce' are implemented.

Concerning the structure of self-exclusion mechanisms, it has to be emphasized that the differences between vertically regulated systems and vertically unregulated systems could influence the reasons for processing self-exclusion data, as decisions surrounding the purpose of processing self-exclusion data relate to the regulation of self-exclusion mechanisms. It is reasonable to assume that in a vertically regulated system, a state, or international or supranational organization, is in charge of this issue. It is hard to believe that a state (or an organization composed of several states) whose public policies concern responsible gambling principles, will allow the processing of self-exclusion data for purposes that essentially go against responsible gambling principles. In vertically unregulated systems the operators themselves decide whether to process gamblers' data for purposes other than self-exclusion. Their autonomy might turn into arrogance, which could further develop into a linking of gamblers' personal data collected for self-exclusion purposes with other types of data (or to the use of self-exclusion data for purposes that are not pro-protective). A particularly dangerous situation might be created by combining self-exclusion data with data processed for commercial communication purposes. Risks that may erode a gambler's personal health could emerge. Therefore, for the protection of gamblers, it would be beneficial if service providers could demonstrate the use of privacy preserving tactics that would preclude the processing of self-exclusion data for purposes other than that of responsible gambling.

The size of a self-regulated organization has a meaningful influence on Bob's protection. The bigger the self-exclusion mechanisms are, the less chance (one would assume) Bob has to access gambling services during his self-exclusion period. Nevertheless, the notion of size has to be clarified. Size might be interpreted in various ways, but the number of companies included in an organization and their size are often perceived as the standard quantitative yardsticks. Previous findings from this study suggest that the number of service providers included in an organized system of self-exclusion is a very important factor, whereas the size of the included companies is far from being a crucial factor that influences the protective function of the self-exclusion mechanism. Namely, it is a well-known fact that Betfair, Paddy Power and Ladbrokes are very big companies and are two of the largest online gambling service providers in the UK, but also in Europe and at the global level. However, if these companies form horizontally connected self-exclusion mechanisms, Bob's registration in their unique self-exclusion databases would still only prohibit him from accessing the games offered by these gambling operators alone. They may cover the largest portion of the market (in terms of gross gaming revenue or the number of customers they have), but an important element for the protection of self-excluded gamblers concerns the opportunities that are available to them in terms of gambling. In other words, Bob would still be able to find numerous alternative opportunities to gamble despite his self-exclusion from the services offered by the largest companies on the market. Therefore, an increase in the number of companies included in a unique self-exclusion system directly influences the growing number of links that are necessary for data exchange. Thus, as more links exist, more companies would be able to check whether Bob is self-excluded or not. However, there are exceptions to this rule. A company's size plays a very important role if the national gambling market is monopolized. In such cases, the availability and accessibility of one self-exclusion database should ensure that self-excluded gamblers with a particular

citizenship are not allowed to gamble. Nevertheless, this hypothesis only works if unlicensed service providers are in some way inaccessible in that national market and if gamblers are only able to access the services provided by the licensed service providers in that particular state.

The foregoing discussion implies that the implementation of a data linking strategy would facilitate data exchange among various data controllers and increase the odds of keeping self-excluded gamblers away from gambling. However, the implementation of a data separation strategy is a potential safeguard for processing data within the determined self-exclusion purposes. The implementation of a data separation strategy in vertically regulated systems increases the chances that self-exclusion data will remain inaccessible to illegal entities and those with intentions that are not in line with gambler protection. However, the use of self-exclusion data for purposes other than self-exclusion is not necessarily adverse. Linking self-exclusion data and its use for purposes that are not related to self-exclusion might generate new information that can then be used for protective aims.

5.3 Data about problem gamblers

Online gambling service providers might access various databases while they are searching for information that is useful for the detection of problem gamblers. The relevance of the available information may be variable and to a certain extent disputable. For example, the databases of blacklisted gamblers created by gambling service providers, or data generated by self-assessments tests, cannot be considered as reliable sources for the detection of problem gamblers in every case. It is reasonable to assume that online gambling service providers and online gamblers themselves are not experts and therefore able to carry out a medical diagnosis of problem gambling. Nevertheless, databases of problem gamblers managed by professional organizations and entities that usually operate outside the gambling industry may also be checked. Various expert groups and professional assistance organizations support gamblers who complain about their gambling behavior.[538] Moreover, the EC Recommendation enshrines that online gambling service providers shall provide information about professional assistance and support to their customers.[539] The medical diagnosis of someone's behavioral disorder(s) is a task exclusively reserved for professionals. Therefore, information from medical databases of people with behavioral disorders, including problem gambling, ought to be viewed as a highly relevant source. If, for example, Carol is a problem gambler with a determined medical diagnosis, checking the databases of problem gamblers under treatment (if this kind of registers exists) could either prevent her from accessing gambling services or put her under a specific duty of care when she gambles. However, these possibilities would depend on several issues related to the form and structure of the databases, appropriate regulation, and the accessibility of said databases.

Databases that contain data about gamblers with symptoms that suggest problem gambling could contain several types of information concerning problem gambling. Also, the term 'problem gambling' may go beyond the state's use of the term, which refers to a gambler with a medical problem (also known as a compulsive gambler, pathological gambler or a gambling addict) and also include risky gambling behavior that is not considered to be a medical condition.[540] For that reason, we may classify

[538] An example of a UK organization that works on promoting responsible gambling, and that supports gamblers whose gambling behavior concerns them, is Gambling Aware. For more information see: Be Gambler Aware, <https://www.begambleaware.org/> accessed 9 November 2017.
[539] EC Recommendation, arts 4(d), 25(c).
[540] For more about see Chapter III, section 3.

data about problem gamblers into three different categories by taking into consideration three varying levels in the development of problem gambling.

In the first group, there is data about online gamblers that are not medically diagnosed problem gamblers, but whose propensity toward the development of this kind of problem has been confirmed through expert analysis. Therefore, these gamblers could be considered vulnerable gamblers that are 'on the way' to developing medically diagnosed problem gambling. Data about these kind of gamblers ought to indicate why they are deemed to be risky gamblers and describe the features of their gambling behavior. The members of this group share common characteristics (propensity toward the exacerbation of their health), but each group member has been singularly diagnosed. For that reason, the development of several subgroups within this group of problem gamblers is recommendable. The subgroups would be useful for grouping gamblers with similar problems together. For instance, the first sub-group may contain data about problem gamblers who spend a considerable amount of their personal wealth on gambling, whereas the second sub-group could focus on gamblers that spend a significant amount of time, but not money, on gambling. A third sub-group could then be composed of gamblers that neglect their professional and familial relations. This sub-categorization of gamblers is beneficial for the implementation of proper preventive measures for halting/slowing down the further development of problem gambling, particularly the type with medically diagnosed problem gambling. For instance, a responsible gambling department operating from within an online gambling service provider might decide to improve the exchange of data between the department in charge of financial data, and databases that contain data about problem gamblers that belong to a sub-group composed of gamblers who spend a considerably high amount of personal wealth on gambling. Data exchange might reveal new information that may shed light on gamblers' finances and personal wealth. Further cooperation with medical professionals and those entities that manage medical databases could refine the available data and potentially determine a new diagnosis or confirm already existing ones. It should not be forgotten that expert organizations in charge of the determination of problem gambling, base their findings mainly on the self-assessments made by gamblers, which are subjective and potentialy inaccurate. Thus, data exchange could create more useable mediums (besides self-assessment) for diagnoses and in that way, improve our ability to recognize instances of problem gambling and increase the amount of opportunities available for the implementation of better preventive measures. Specifically, real-time gambling behavioral data may be useful for validating statements made by gamblers about the intensity and frequency of their gambling, as well as the funds they spend on gambling.

The second group of problem gamblers consists of those gamblers who have already been diagnosed as problem gamblers. These online gamblers are medically diagnosed problem gamblers. Obviously, the personal data regarding this type of gambler will be concerned with the status of their health, and for that reason, ought to receive better protection than non-medical data.[541] The GDPR lays down several specifics about the processing of special categories of data, including data concerning an individual's health.[542] Apart from personal identifiers, databases of medically diagnosed problem gamblers might include data about features regarding problem gambling as a diagnosed condition. It could be expected that these databases of medically diagnosed problem gamblers contain information about the duration of the problem, indicative manifestations, proposed treatments, the progress made and challenges in

[541] More about legal aspects on 'data concerning health' in Chapter VIII.
[542] GDPR, art 9.

the implementation of problem gambling treatments, the acceptable level of gambling consumption or gambling prohibition, and the existence of comorbidity with other sorts of disorders (e.g. alcoholism). It is reasonable to expect that medically diagnosed problem gamblers shall be put under special scrutiny and treated differently from moderate gamblers. Considering the vulnerability of medically diagnosed problem gamblers, it might be assumed that a lack of monitoring of their behavior could lead to a deterioration of their health. Therefore, available expert instructions about necessary treatments ought to be respected by gambling operators. For instance, if a database contains a recommendation as to the prohibition of commercial communications for a certain gambler or type of gambler, then online gambling service providers ought to follow this recommendation. This obligation may even derive from a company's corporative model based on its responsible gambling policies and principles, or from a mandatory gambling legislation. If not prohibited, commercial communications could be limited. This relates to the probability that some sorts of commercial communication would not influence the level of gambling consumption of a problem gambler and provoke adverse effects to their personal health. Based on this, the commercial communication department should have access to this type of information when deciding which advertising appeals should not be sent to gamblers and which are permissible. Furthermore, medically diagnosed problem gamblers might be split into two categories – the first one composed of those gamblers who are not to receive gambling-related advertisements and the second composed of those gamblers that may receive commercial communication content, but in a controlled fashion. The entities in charge of commercial communications should not have access to the data of the first group of problem gamblers. Other tactics from a 'hide' strategy could be implemented to make sure that the data of medically diagnosed problem gamblers, who are not allowed to receive gambling-related commercial communications, is inaccessible and unusable for gambling advertisers.

The issues of permissibility and prohibition not only concern the distribution of commercial communication, but also concern gambling activities themselves. For example, medical experts could firmly recommend that Carol be suspended from all gambling activities. If this information is available to online gambling service providers, then they should respect the recommended prohibition. The hypothetical situation concerning Carol and her difficulties stopping/controlling her gambling, suggest that data exchange could form controlling mechanisms over someone's gambling behavior that are more effective than those founded on data separation. The implementation of a data separation strategy creates scenarios that are pro-privacy and protective, but deprive online gambling service providers from processing data concerning a gambler's health. Furthermore, data separation hinders the potential for expert organizations to collect data from those entities that have the best insight into real-time gambling behavioral data. For that reason, experts ought to relay their findings on problematic gambling behavior, which are mainly based on interviews carried out with gamblers and their family members, and self-assessment tests.

The third group of online gamblers is composed of problem gamblers that are prone to committing a crime. The prevalence of crime among the population of problem gamblers is much higher than among those that are moderate gamblers or that do not gamble at all.[543] However, there are no clear and

[543] Corinne May-Chahal and others, 'Gambling Harm and Crime Careers' (2017) 33 Journal of Gambling Studies 65; Toine Spapens, 'Crime Problems Related to Gambling: an Overview' In: Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhoff Publishers 2008) 47-52; Gerda Reith, 'The Culture of Gambling in Great Britain: Legislative and Social Change' In: Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhoff Publishers 2008) 170-173.

proved correlations between problem gambling and the commission of crimes; whether gambling activities lead to a high level of crime among problem gamblers or whether the opposite is the case, is not clear. Criminals gamble more than others, and by doing so, they are at a greater risk of becoming problem gamblers. Regardless of this 'chicken-egg problem', it is a fact that problem gambling influences (or is affected by) a propensity toward criminal activities. Thus, in a data linking scenario, the personal data of problem gamblers with criminal records ought be available to the professionals in charge of problem gambling issues. Also, the availability of this type of data to online gambling service providers could improve the protection of this kind of problem gambler. This claim can be illustratively shown by considering Carol's example. If Carol is a problem gambler with a criminal history, and previously collected and processed data indicates that she has no income and possess a very limited amount of personal wealth, her deposits of unusually high sums of money on her account, which are dedicated to betting, could form at least two suspicions. The first, is that she intends to breach her gambling prohibition (if it has been recommended or imposed). The second, is that she may have committed a crime in order to get that money that she has now dedicated to gambling. Making her data available, in this case, might help reveal a crime (if it was committed). If a robbery occured in Carol's neighborhood, she could be placed on the list of suspects. Further investigation may even reveal that Carol did commit a crime. Revealing such a crime would not only be beneficial for the maintenance of public order, but also for individual-based prevention and, possibly, for Carol's rehabilitation (under the presumption that the investigation proved that she committed the crime). Here we may exploit the 'chicken-egg problem' again. Revealing the crime would lead to a rehabilitation process that is supposed to achieve results, such as a lowering of Carol's propensity toward further crime. If Carol no longer stole, she would probably be without finances for gambling, and in that way, forced to respect her recommended or imposed gambling prohibition. The opposite also applies. That is, if her prohibition from gambling is consistently enforced, Carol would have no interest in obtaining finances for gambling purposes, reducing the chances that she will commit further crimes in order to get money to gamble with. Therefore, it might be assumed that the development of an effective preventive system is based on linking gambling-related data, data concerning health and the data from criminal records. In contrast, a data separation strategy restricts the processing of each group of data to the determined data controller (e.g. the gambling-related data is processed by an online gambling service provider, the data concerning health by medical professionals and the data about crime by the police or prosecutors). A data separation strategy creates scenarios where the ability to inform oneself (as an interested agent) about additional aspects of gambling-related behavior, whcih could provide further information regarding problem gambling, is not possible. As a consequence, service providers would go without the information that Carol is a problem gambler that has deposited stolen money in order to gamble; medical professionals would not be able to find out whether Carol follows her recommendations regarding her limiting or prohibition of gambling, and the criminal investigators would receive no assistance in tracing the stolen money.

In summary, data about problem gamblers that is created/collected by expert organizations is probably the most reliable source of information regarding gamblers who must be put under a high level of scrutiny or kept away from gambling activities. Therefore, making this kind of data available to online gambling service providers is significant for gambler protection. Links for data exchange between online gambling service providers and professional organizations improve gambler protection in a dual manner. Firstly, operators are informed about consumers that ought to be given special attention. Secondly,

professional organizations are able to use several sorts of data to diagnose problem gambling and follow the rehabilitation progress of gamblers.

5.4 Marketing tools and databases

Gambling-related commercial communication programs can be managed by one online gambling service provider, or by several connected companies. Affiliated companies could develop their own unique customer database or they may exchange consumer data among themselves. By doing so, online gambling service providers stipulate the interoperability of data usable for marketing purposes and gain access to more consumer data than is possible within a marketing program that is managed by a sole service provider. Also, data formed and expressed through gambling activities in the offline environment also provide an insight into various aspects of someone's gambling behavior.

Online gamblers are consumers that engage in certain buying behaviors. As any other group of consumers, they also have their needs, desires and habits, and act in a particular way. Service providers, including online gambling service providers, seek to find out when, how, why and what their consumers buy.[544] From a marketing and business perspective it is legitimate to profile consumers in order to detect opportunities for selling them more services. However, to build a more complete picture about someone's gambling behavior, it is useful to have information about that person's private and professional life, including their general consumption habits. For that reason the exchanging of data between business entities and companies that process consumer data in order to offer various services, might contribute to the profiling of gamblers.

Whilst aiming to either keep their customers, increase the amount that their customers gamble or gain their customers' loyalty, online gambling service providers could use various marketing strategies. Such strategies could use 'awarding' as a method (e.g. by offering promotional deposits, better quotes and discounts to certain customers) that might influence gambling consumption and, subsequently, gambling behavior. One of the marketing strategies in the online gambling industry is the engagement with affiliated companies that organize marketing campaigns on behalf of online gambling service providers. This kind of cooperation could result in effective promotional campaigns of gambling services. Yet, national gambling legislations do not require advertisers to carry out a registration procedure for online gamblers. Notwithstanding the fact that advertisers should not supply underage consumers with gambling advertisements, in practice, there is no reliable instrument that ensures that underage consumers are spared from gambling-related commercial communications. First it should be confirmed that a consumer satisfies the requirements related to the applicable age threshold for receiving gambling-related advertisements (this is mainly done by a checking of a box whereby a consumer confirms that he/she is over 18 years old). Afterwards advertisers trace a consumer (by following his/her visits to various promotional contents), then profile him/her and supply them with targeted advertising appeals (that could contain a link to gambling services). Any reaction in respect to the received advertising appeal generates new data.[545] An analysis of Alice, Bob and Carol`s add-response behavior may additionally contribute to the profiling of their gambling behaviors. For instance, a positive reaction towards an advertising appeal might indicate the success of a commercial communication. Maybe Alice swiftly accepts advertising appeals (by opening the mail or clicking on a pop-up message) after becoming aware that service providers tend to inform her about new gambling opportunities. She may also

[544] See <http://research-methodology.net/consumer-buyer-behaviour-definition/> accessed 10 November 2017.
[545] See the feedback loop in Chapter IV, section 4.

regularly check the boxes which ask her if she wishes to receive gambling promotions. These facts point out to the conclusion that the commercial communications sent to her matched her personal interests or that Alice is a type of consumer that always checks advertising appeals. In contrast to Alice, Carol does not often react to commercial communication. Sending new offers for sports betting may never elicit a response from her. Nevertheless, by refining her profile, the commercial communications department could realize that Carol always reacts to offers regarding online slot games. Evidently, a hypothesis that she is particularly interested in this type of gambling would, in this case, probably be accurate. Moreover, after the interruption of a very long session of gambling on slot games, a positive reaction to commercial communications in a way that initiates another session shortly after the completion of the previous one, might form suspicions that she experiences difficulties controlling her urges to gamble and/or in controlling the duration of her gambling sessions. Finally, Bob, who is trying to stop gambling as part of his rehabilitation process, begins gambling again after seeing a gambling advertisement. Thus, it could be assumed that commercial communications have a very destructive effect on him. However, whether commercial communications have a destructive effect in Bob's case can be evidenced only if data about his problem gambling is available to the online gambling service provider or advertiser.

When a gambler decides to gamble he/she must register him/herself, or sign in (if he/she is already an existing customer). When a bet is placed, game is played, or after a player has clicked on an advertisement, the online gambling service provider should inform the advertiser about the gambling activities that followed and their outcomes. Providing this type of information is usually necessary for determining the revenue of the advertiser. Therefore, cooperation between gambling affiliated companies that organize marketing campaigns and online gambling service providers is based on data exchange. Namely, gambling affiliated companies strive to maximize data about potential gamblers in order to profile them. Apart from information about gambling-related activities being used to determine an advertiser's revenue, this data could be used for additional commercial communication purposes. Namely, advertisers get information about how much money a gambler lost or won, and how many games they played, which is useful information that could be used for further profiling and the refining of commercial communications. Therefore, the described cooperation includes the implementation a data linking strategy. The problematic issue related to the engagement of gambling affiliated companies in marketing activities, relates to the fact that these companies are not required to protect gamblers in the way that online gambling service providers must. For instance, these companies might profile Bob and supply him with commercial communications despite the fact the he is a self-excluded gambler. However, if online gambling service providers exchange information with advertisers about self-excluded gamblers, or players on time-out, then Bob could be excluded from commercial communications during the period of his self-initiated prohibition. Therefore, a data linking strategy should not only serve to stimulate business but also serve the implementation of responsible gambling standards in the field of gambling-related marketing.

Other important gambling-related marketing strategies are those that use the processing of data for commercial communication related to products that are not linked to gambling activities. Consumer habits could reveal information about an individual's personal wealth. For example, if Alice is prone to buying expensive food, clothes, having lunches and dinners at very expensive restaurants and pays very high monthly rates for personal insurance, then it is probable that targeted commercial communications sent to her will include offers for expensive products. However, in Carol's case, data about her consumer habits might signify a complete opposite state of personal wealth due to her very limited financial

capabilities. This fact might influence the splitting of Carol and Alice into two different groups of consumers, concerning the consumption of gambling products. It is also possible that Bob uses expensive devices to go online and spends a considerable amount of his funds on gambling. Linking previously collected financial data with the newly obtained data might contribute to consumer profiling in a manner that refines the information available on a gambler's personal wealth, which may then further affect our knowledge about someone's gambling behavior. For instance, an individual's general consumption behavior could indicate economizing tendencies in various domains (e.g. in the purchasing of food or clothes). This could be a simple matter of lifestyle choices, but may also indicate tendencies towards risky ways of gambling. If Carol tends to save money in everyday shopping activities (that includes the purchasing of necessary goods such as food), but is ready to wager a very high amount of money on gambling activities (considering her personal wealth) then it could be assumed that her gambling behavior is risky. If Carol is a frequent buyer of alcoholic drinks, then one could make various assumptions about her behavior. Given that medically diagnosed problem gambling often occurs alongside alcoholism, as an additional disorder, then an assumption regarding Carol's gambling behavior could be established. Yet, this remains an assumption. It is quite possible that Carol's husband has problems with alcohol and that her buying behavior reflects the necessity to supply someone else with particular products. Moreover, maybe Carol buys a particular type of alcoholic drink due to the fact that the product has been promoted by a celebrity that she adores. So-called 'celebrity endorsements' are omnipresent as part of marketing strategies and are also implemented in the gambling industry.[546] Thus, online gambling service providers could use these facts to form commercial communications that would probably attract Carol's attention.

Finally, temporal factors in relation to the spending of personal funds and consumption habits might signal useful details regarding gambling consumption. If Bob buys more products during a particular period of the month (e.g. during the first week of the month, due to the fact that he probably receives his salary in that period), then it could be assumed that he also probably spends more on gambling in the detected period than during the last week of the month (if we presume that at the end of the month he could be financially worse off due to the depletion of his salary). With respect to that fact, it is reasonable to assume that Bob would be interested in gambling during a particular period of the month and, for that reason, targeted commercial communications for Bob should be, *inter alia*, based on this fact.

Data processed for commercial communication purposes is collected in various ways and by the implementation of numerous marketing strategies. Presenting a whole picture of the existing marketing approaches that the gambling industry practices and how gamblers' data is processed for those purposes is neither possible, nor necessary for the goal of this research. However, there is no doubt that by implementing various marketing strategies, service providers may make use of a myriad of channels to collect, store and further process gamblers' data. Online gambling service providers are not the entities that primarily supply their consumers with commercial communications. This is often the job of specialized marketing companies that might provide their services to stimulate growth for online gambling operators, in terms of players and income. Additionally, online gambling operators are not able to collect and process data about the general consumption habits of their consumers. Therefore,

[546] Sally Monaghan, Jeffrey Derevensky and Alyssa Sklar, 'Impact of gambling advertisements and marketing on children and adolescents: Policy recommendations to minimise harm' (2008) 22 Journal of Gambling Issues 252, 258.

linking data from various sources makes marketing strategies more profound and, probably, more effective. At the same time, the exchanging of information between online gambling service providers and suppliers of marketing data, might also serve to benefit the protection of gamblers, as was illustrated in the case of self-excluded gamblers.

5.5 Extracting data from social media

Extracting data from social media web pages might deliver new information that may be useful for online gambling service providers. Data available on social media might be used to confirm an already established hypothesis or to question it. Before engaging in further analysis, what social media is, and why it deserves our focus, ought to be clarified. Notwithstanding the existence of various different definitions of and possible explanations about social media, it could be outlined that the term social media refers to "communication channels dedicated to community-based input, interaction, content sharing and collaboration."[547] Interactions and connections established through social media have an important role to play in the workings of online social networking. Social interactions and user behavior detectable through social media, reflect various aspects of an individual's personal attitudes. Thus, they may reveal what users prefer, think, like, dislike, as well as what webpages they visit, with whom they live, or attend various events, where they work and numerous other forms of personal information. Therefore, screening social media could provide useful data for personal profiling.

Data scraping, data harvesting and data crawling are several different useful approaches for extracting data from social media. In general, the technologies used to retrieve data choose the most appropriate sets of data according to previously determined instructions and structure them (a particular feature of data scraping) in a form that is useful for further analyses. However, it is beyond the scope of this research to discuss the functionality of implementable technologies and the methodologies for extracting data from social media. Nevertheless, it has to be stressed that these technologies cannot collect and process all of the data that social media users generate through using various social media platforms. To a large extent, the visibility of the data that social media users disclose depends on the settings they apply to their social media accounts. They might decide to apply settings that make their data publically visible (e.g. visible to anyone who accesses their social media web page) or to keep it private and make their data visible only to selected categories of potential viewers (e.g. 'friends' on Facebook or 'followers' on Instagram). There are various levels of settings on social media platforms that make data more or less visible. From a methodological perspective, it is a great challenge to take into consideration all the possible levels of data visibility that exist on popular social media platforms. Therefore, the following presentation about the extraction of data from social media is carried out under the presumption that the data of social media users is mostly visible to the public.

Certain user information, such as a user's contact name, age, address (street, city zip code, and country), email address, phone number and personal URL, may be available on popular social media platforms such as Facebook or LinkedIn. Moreover, Facebook is one of the most popular social media platforms and requires its users to be identifiable by imposing a real-name policy.[548] A user will reveal their personal name and several other pieces of personal information when creating his/her own accounts on social media, or after having created said account. Therefore, an online gambling service provider could

[547] See <http://whatis.techtarget.com/definition/social-media> accessed 10 November 2017.
[548] Facebook, 'What names are allowed on Facebook' <https://www.facebook.com/help/112146705538576> accessed 10 November 2017

connect its own customers (or rather their accounts) with their social media accounts (if they exist) by comparing data from their own databases (e.g. registration data) with the data available from social media.

Social media users disclose a massive amount of their own data, particularly on social networking platforms, in order to to develop and maintain a relationship with other users.[549] This available data provides information about various aspects of their personal lives. Data available on LinkedIn provides information about a users' professional engagement, education, experience, and skills. This social network might be used to reveal an online gambler's profession and current employment. This data may also be used to extract implicit information about a gambler's annual income. Personal incomes are valuable pieces of information for estimating whether a gambler lost a substantial part of personal wealth in an observed period. That could be one of the indicators of problem gambling. As was already discussed, what is considered to be a reasonable portion of wagered personal wealth (money that can be affordably lost on gambling) is very contextual, and depends on various factors. An individual's annual income is just one factor, but is worthy of consideration. Yet, personal debts, bank loans, the number of family members one has and their incomes, as well as many other factors should also be observed to determine an online gambler's financial limits for gambling.[550] Thus, apart from an individual's professional engagement, other data collected from social media might serve this purpose. Details about family relations and family members, one's place of residence, as well as other additional information that demonstrates a gambler's lifestyle, might be detectable via social media. In addition, social media might provide details such as places visited for fun and pleasure, show photos taken in various locations, provide information about the individual having stayed in different accommodations or even information on an individual's consumption of products and services. This information could be interpreted as indicators about a specific lifestyle that reflects a certain level of personal wealth. If Alice visits expensive places, expresses an interest for expensive products, regularly travels around the world for fun and stays in high-class hotels, then it could be inferred that she belongs to a certain social class with a high level of personal wealth. However, Bob, is not a frequent traveler, usually books very cheap accommodation, enjoys cheap restaurants and travels from one place to another by taking the cheapest possible transportation means. It could therefore be inferred that he belongs to a different class of traveler than Alice does. At first glance, this information seems to shed light only on their traveling habits. However, it could be implicitly indicated that Alice and Bob belong to different social categories concerning personal wealth. Financial data, as part of real-time gambling behavioral data, provides information as to how much money gamblers spent on gambling during the observed period. The frequency of their spending and the amount spent are important factors for the indication of problem gambling. The data available from social media may reveal facts that belong to the personal spheres of individuals and that are not necessarily related to gambling. Yet, this data could considerably contribute to the profiling process; particularly in the aggregation phase when Bob and Alice shall be categorized according to different categories of consumers, and especially if the processing of the data available on social media provides results indicating that Bob and Alice belong to different groups of consumers with different levels of personal wealth.

[549] Hanna Krasnova and others, 'Online social networks: Why we disclose?' (2010) 25 Journal of Information Technology 109.
[550] See the subsection 4.4.2.

Social media could contain data about personal preferences that are not directly related to gambling but that could be used for gambling purposes, particularly for commercial communication purposes. Users provide information about their favorite books, bands, TV shows, food, their religious and political views, and many more details that are useful for personal profiling. Characters and stories from popular movies and books and songs that are part of popular culture are often embedded in the audio-video aspects of a certain game.[551] Therefore, by processing the socio-cultural features of their customers, features which are discernable from their social media accounts, online gambling service providers might go on to refine gambler profiles for commercial communication purposes.

Social media users reveal information about themselves, but might also express their opinions about other users, groups, activities or opinions. The liking, sharing and posting of various contents, joining of different groups or participation in debates and forums, evidences a user's interests and viewpoints about certain topics. It might be assumed that a gambler who frequently likes, discusses or shares posts and twitter feeds about sports betting results and betting opportunities is interested in this sort of gambling. Moreover, a user might explicitly disclose information about his/her personal preferences. Social media platforms offer numerous opportunities for their users to express their own desires, ideas, and preferences and make them publically available. In addition, some social media platforms such as Instagram are primarily used for video and photo sharing. If Bob's social media accounts contain a bunch of photos taken in casinos, it might be assumed that his gambling preferences are not restricted to the domain of online gambling and spill over into conventional types of gambling. Obviously, linking real-time gambling behavioral data with this kind of information is quite useful for profiling Bob's gambling behavior.

Social media is also a good medium for sharing experiences regarding one's gambling activities. Online gamblers might share their own experience or look for support among people without expert knowledge by using online forums and social networks as platforms for exchanging experiences and knowledge. These environments are very interactive, and several people might participate in one discussion. Discussions on social networks might take longer than interviews with medical professionals and individuals may disclose even more information than they would to medical professionals. By presenting their experiences on social networks, gamblers reveal data that could be useful for the evaluation of their gambling behavior. Thus, membership to social networks groups and active participation in discussions about problem gambling issues, could signal that a gambler is experiencing or has experienced problematic forms of gambling. Also, powerful text analysis tools such as Google's Cloud Natural Language API might be able to extract information about 'people, places, events and much more' to carry out sentiment analysis.[552] Scientific studies demonstrate that reasonably accurate personality prediction is feasible through the analysis of texts available on social media and in email communications.[553] The available text should be perceived as one additional data source that could be

[551] For instance, the audio-visual presentation of various video slots and slot machine games are inspired by books, movies and characters such as Lara Croft, Superman, Batman, Hulk, Sinbad, Pink Panther, Gladiator, the Godfather or Star Wars.

[552] Google Cloud Platform, 'Cloud Natural Language API' <https://cloud.google.com/natural-language/> accessed 10 November 2017.

[553] Thomas Holtgraves, 'Text messaging, personality, and the social context' (2011) 54 Journal of Research in Personality 92; Scott Nowson, 'Identifying more bloggers: Towards large scale personality classification of personal weblogs' (Proceedings of the International Conference on Weblogs and Social, 2007); Jianqiang Shen, Oliver

used for determining gamblers' personalities. In that way, information about the psychological features of an online gambler could be obtained.

The decision to focus on data from social media was made because this data source offers a historical view of the activities users engage and information about users' lives in real-time. In addition, social media enables the presentation of content that results from the crosslinking of various data sources. Thus, the observation of this data and its combination with other data collected by online gambling operators might facilitate the creation of a more complete user profile. Finally, it ought to be mentioned that it is difficult to find comparable data sources that offer a similar spectrum of granular details about the personal lives of individuals like social media does.

5.6 Conclusion on data linking vs. data separation strategies

This section particularly emphasizes the significance of the implementation of a data linking strategy, but without neglecting the importance of data separation strategies. There is growing support for the position that data linking creates limitless opportunities for finding out details about gambling behavior. Therefore, on the one hand, this section explains how linking non-gambling related data with gambling-related data, as well as linking gambling-related data held by several data controllers, may reveal information that is useful for the prevention of problem gambling. On the other, the section points out how the implementation of a data separation strategy affects the discretion service providers have on how to handle gamblers' data and for which purposes.

Taking into consideration that online gamblers could access gambling services that are based in various different states, tracking a gambler's behavior whilst taking into consideration the possibility of cross-border gambling activities is a very challenging task. Therefore, linking gambler data that is scattered throughout various databases, which belong to various online gambling service providers that are licensed in various EU Member States, is quite desirable. Moreover, a common system for the identification of players would be useful, at least for creating a robust and functional self-exclusion system. As concerns health problems that may come from engaging in gambling activities, it is important to gather the highest possible amount of reliable findings. A medical diagnosis of problem gambling is the most valuable source for revealing whether a gambler is experiencing adverse gambling consequences. It has to be repeated that the responsible gambling function is proactive (to prevent problem gambling by keeping the gambling level within the constraints of moderate gambling).[554] Thus, the medical treatment of medically diagnosed problem gamblers is beyond the scope of the responsible gambling approach. However, linking data concerning health with gambling-related data should indisputably confirm whether gambling-related problems exist and if so, how serious they are. As a consequence, the need for responsible commercial communication would not be disputable. Finally, processing non-gambling related data for gambling-related purposes triggers various ethical and legal problems (e.g. in relation to data protection and purpose limitation). However, we cannot neglect the fact that data gathered from social media and marketing databases (as well as its linking with gambling-related data) might produce information that could have a significant role to play in the profiling of online gamblers, whether for responsible gambling or commercial communication purposes (or for both).

Brdiczka, and Juan Liuand, 'Understanding Email Writers: Personality Prediction from Email Messages' in Sandra Carberry and others (eds), *User Modeling, Adaptation, and Personalization* (Springer 2013).

[554] For more about see Chapter III, section 4.

Data linking strategies form opportunities for perceiving someone's gambling behavior from various different perspectives. For instance, medical professionals observe certain aspects of gambling behavior, whereas gambling operators have other insights to offer regarding gambling behavior. Taking into account the saying that 'two heads are better than one', by linking data from both sources, we may get a more complete analysis of somebody's gambling behavior than would be the case with the implementation of other strategies. Therefore, a data linking strategy is a valuable instrument for a responsible gambling approach. However, it is a privacy invasive approach. Its implementation imposes the need to process data that is collected for one purpose (e.g. marketing purposes) for some other purposes (e.g. responsible gambling purpose). Thus, the data separation strategy serves as a counterbalance to preserve personal privacy. Other strategies and tactics proposed by Colesky, Hoepman and Hillen (such as certain tactics within a 'hide' strategy) contribute to responsible gambling by prohibiting unauthorized subjects from accessing the linked data and eventually processing it. From what has been presented above, it might be concluded that the responsible gambling approach must include the implementation of both privacy preserving and privacy invasive strategies.

6 Discussion

The protection of online gamblers' privacy and personal data is significant for numerous reasons. Hoepman's work proposes privacy preserving strategies that could be structured in various ways. This research contributes to the work on privacy design strategies by contextualizing data minimization and data separation strategies. The context of the issue of the processing of online gamblers' personal data is used to indicate cases where the tactics proposed by Colesky, Hoepman and Hillen could be applied. The selected strategies from Hoepman's work – data minimization and data separation strategies - are supposed to be guarantors of pro-privacy solutions. Concerning the prevention of problem gambling and the context of this research, it has been shown that both privacy-protecting and privacy-invasive solutions affect the profiling of online gamblers.

The part on identification and personal identity presented in Chapter V pointed out that our presumptions about ourselves are intricately linked with the opinions of others. What others think and know about us affects our opinion about ourselves. Thus, suggestions, indications, and advice about someone's gambling behavior may influence his/her self-awareness concerning gambling activities and the potentially adverse consequences of such. Self-awareness is the cornerstone of a gambler's informed choice, which is a pivotal requirement of responsible gambling.[555] In general, gambler protection is affected by the actions taken by various subjects. However, the actions taken by online gambling service providers are of particular importance. Gambling operators can manage a gambler's decisions, enforce prohibitions or suggest gambling treatments. Therefore, they engage in various actions to contribute to their consumers' self-awareness about the adverse effects of gambling. By doing so, operators implement responsible gambling policies by empowering gamblers' informed choice. However, service providers might also steer gamblers towards making decisions in ways that increase the amount they gamble. When gambling operators decide upon issues regarding the protection of gamblers and shape their responsible gambling approaches, they should make choices about the processing of consumers' data. Thus, taking into account their business aims and policies, as well as any relevant mandatory legislation, they have to select the course of data processing, the scope of customer

[555] More about in Chapter IV, subsection 4.2.2.

data that will be collected, and where they will source this data from. It might be said that processing the data of online gamblers is an unavoidable factor for the provision of online gambling services and thus, that decision-making about data processing includes a consideration of Hoepman's strategies, and their antipodes.

The analysis of data minimization and data separation strategies in the context of the provision of online gambling services demonstrated that these strategies may restrain an excessive processing of gamblers' data and protect gamblers' personal privacy. Nevertheless, to continuously select and/or exclude certain data in order to strictly implement a data minimization strategy in relation to the processing of online gamblers' personal data, is a challenging task. This is because online gambling activities constantly generate new information that could be used for refining gambler profiles.[556]

Data maximization and data linking strategies support methods for data processing that would be considered excessive from the perspective of privacy protection. Nevertheless, the scope of processed data is not a determining factor when it comes to implementing a processing strategy.[557] For example, a limited scope of processed data does not necessarily equate to a privacy-protective approach. In the part related to the registration of gamblers, it was shown that the processing purpose determines whether data is handled for either pro-protective purposes or pro-commercial needs. Thus, it would not be inaccurate to claim that even the lowest amount of personal data processing (an amount that would be processed during the implementation of a data minimization strategy) might be used for detecting gambling preferences and that the further analysis of such might serve to assist in the pursuit of lucrative and not so protective purposes. Even if we were to hypothetically implement all of the tactics proposed by Colesky, Hoepman and Hillen within a data minimization strategy (select, exclude, strip and destroy), we still could not ensure the protection of privacy without determining the purpose of the data processing in question. For instance, a gambler's address has to be revealed during the registration process. If the registration needs do not strictly constrain the purpose of data processing, then online gambling service providers might use it for detecting demographic, social and cultural factors that might be processed further and affect gambling behavior. Yet, another significant aspect points out that the processing of a large amount of gamblers' personal data is not necessarily privacy-invasive. For example, a centralized credential-based identification system of new gambling consumers, like in Denmark (as discussed in Chapter V), might process more data during the registration process than online gambling service providers do for registration purposes. However, once the registration is completed, an online gambler might use his/her own credentials to access all the licensed gambling service providers in Denmark. In that way, privacy enhancing technology limit the opportunities online gambling service providers have for processing their consumers' data. Moreover, it might be said that credential-based systems adopt a 'hide' strategy to limit the opportunities online gambling service providers have for processing gamblers' data for any other purpose than registration.

Privacy-invasive approaches depicted by the implementation of data maximization and data linking strategies are not unjustifiable. The use of these strategies for both commercial communication purposes and the protection of gamblers is neither unusual nor necessarily wrong. However, the protection of online gamblers is endangered if the implementation of data maximization and data linking strategies is not constrained by responsible gambling purposes or, more specifically, for the

[556] Check the feedback loop in Chapter IV, section 4 and section 2 in this chapter.
[557] More about explained in subsection 3.2.

prevention of problem gambling. To be sure, limiting the purposes for which data processing is permitted, which on the one hand would protect gamblers' private spheres, and, on the other, create suitable effective means for the implementation of the responsible gambling approach, is a very challenging task. One of the main reasons why this is the case is because of the difficulties present in accurately determining the field in which each of the presented strategies ought to be implemented. The following illustration exemplifies this issue. Whether Bob is often distressed when gambling (5th diagnostic criteria according to DSM-5), or restless, or irritable, when he attempts to cut down or stop gambling (2nd diagnostic criteria), can be detected by processing several different sorts of data. Information about the emotions and the psychological state of a gambler could be gathered by processing data from self-assessment tests or the gambler's social media accounts. However, the use of self-assessment tests as part of a data minimization strategy must only contribute to the gambler's informed choice. This implies that this type of data shall not be used for any other purpose. Processing data beyond the purpose of self–assessment, therefore, belongs to the implementation of a data maximization strategy. This is a clear example of how the purpose attached to data processing affects the implementation strategy. Another example refers to the use of medical data. If Carol is registered as a medically diagnosed problem gambler, then access to medical databases might be useful for her protection. However, medical databases are, usually, more protected than those used in non-medical contexts. Therefore, a data linking strategy has to be applied to allow gambling operators to access and check this sort of data. Nevertheless, if a law would be created to bind service providers to access or create registers containing information on problem gamblers, then checking this kind of data would be something done by default. Therefore, the processing of Carol's data about her health would not only be part of a data linking strategy but also of a data minimization strategy. This solution would result in positive effects in terms of the prevention of problem gambling and the treatment of problem gamblers. Thus, it may be a privacy-friendly solution that could be achieved if responsible gambling purposes constrain the purpose of medical data processing.

The registers of medically diagnosed problem gamblers, which are managed by professional organizations, are the highest relevant sources of data containing information on those gamblers that should not be permitted to gamble. However, as explained earlier, risky gambling comes in various forms that could be perceived as transitional states between moderate gambling and problem gambling. The prevention of problem gambling primarily aims to keep gambling behavior within the boundaries of moderate gambling. Any of the implementing strategies serve responsible gambling purposes and seek to assist in the prevention of problem gambling. However, their domains are very different. The implementation of a data minimization strategy determines the lowest threshold for gambler protection (e.g. self-exclusion data and a gambler's age, at the very least, have to be checked). The implementation of a data maximization strategy, however, generates more opportunities for the processing of data that could indicate risky ways of gambling (e.g. by processing real-time gambling behavioral data). The impact of a data linking strategy is felt through the increasing amount of opportunities available to collect data obtained by third-parties (e.g. medical databases, social networks and geolocation data) through cross-linking. As it was stressed above, one could conclude that more data and more connections are beneficial for protecting gamblers from gambling-related risks, but only if the needs of responsible gambling constrain data processing purposes. The constraining of the purposes for which data is to be processed can be carried out by implementing Hoepman's privacy design strategies. Strictly speaking, data minimization and data separation strategies primarily limit the scope of processed data. Nevertheless, in the context of this research they also constrain processing purposes. In practice, a

limitation of processing purposes can be ensured by implementing various tactics, as proposed by Colesky, Hoepman and Hillen. Otherwise, a lack of purpose as to why gamblers' data is being processed (or the presence of several purposes that enable large-scale data processing) might create scenarios in which gamblers become exposed to gambling-related risks.

The determination of a purpose for personal data processing and the processing of data that serves such a determined purpose are becoming more challenging within a data driven environment. Moreover, it is expected that the future will bring more data and more occasions for personal data processing. In a study about Google, John Battelle describes Google as a massive clickstream database of personal desires, needs, wants and preferences. For that reason, he considers Google a "database of intentions."[558] Google is just one player in the global market, although obviously a very influential and wealthy one. What is important to bear in mind, however, is that this company, as well as many others, including online gambling service providers, can use available data to not only reveal a user's intentions, but also to drive (influence) their future actions.[559] Emerging technologies constantly offer new channels and ways of collecting and processing data. For example, we may assume that in the future, connected and wearable devices, especially those that process medical and health data, might be used to recognize gambling-related psychological states (e.g. arousal, excitement, anger) by detecting the signals of biochemical processes that may be associated with these states (e.g. by monitoring one's blood pressure, heart rate or glucose level). Our concern is how this and many other kinds of data would be processed and for which purposes. That companies can collect enormous amounts of information about our personal habits and then use them to manage our consumption patterns is out of the question. Therefore, it is reasonable to wonder whether, and to what extent, constraints on the processing of personal data and the implementation of privacy by design approach may influence consumption by design and prevent problem gambling. The following legal analysis, presented in Chapter VIII of this thesis, will attempt to answer this question.

[558] Kylie Jarrett, 'A Database of Intention?' in René König and Miriam Rasch (eds), *Society of the Query Reader: Reactions on Web Search* (Amsterdam: Institute of Network Cultures 2014) <http://networkcultures.org/query/wp-content/uploads/sites/4/2014/06/1.Kylie_Jarrett.pdf> accessed 10 November 2017.
[559] Ibid.

Chapter VIII – Legal analysis

1 Introduction

In the previous chapter, four different strategies for the processing of online gamblers' personal data were presented, as well as some potential scenarios that may occur as a consequence of the implementation of said strategies. The previous chapter explained how the right to the protection of one's privacy, and more precisely to personal data protection through the application of pro-privacy oriented strategies, has a negative effect on our ability to recognize risky gambling, prevent problem gambling and hinders the protection of gamblers' health. Thus, from what has been presented so far, it could be inferred that the implementation of data minimization and data separation strategies is not necessarily good for gamblers. The implementation of privacy-invasive strategies is more useful for gambler protection, and for the prevention of problem gambling, which is one of the main goals of the responsible gambling approach. Therefore, the hypothesis that, as concerns online gamblers' protection, it is not a bad thing to adopt data maximization and data linking strategies seems convincing. However, the implementation of data maximization and data linking strategies might be problematic from the perspective of data protection law. For that reason, this chapter aims to answer the question as to what the implementation of data maximization and data linking strategies would look like, within the limits set by data protection law. More precisely, and bearing in mind EU Data Protection Law and particularly the GDPR, this chapter aims to answer whether the implementation of data maximization and data linking strategies can be lawful.

This chapter analyzes the legal grounds for the lawful processing of personal data. In general, legal grounds form the cornerstones of lawfulness for various relationships and activities. Namely, the legal ground might be perceived as a legal norm that serves to protect a certain relationship or activity. For instance, the love shared by two people can be seen as a kind of social (and emotional) relationship. To create a legal relationship between them, the couple may marry. By doing so, they would enter into the legal relationship known as marriage. The marriage is settled by law and thus has to be respected. Otherwise, foreseen sanctions can be enforced against those subjects that infringe the provisions that regulate that marriage. Therefore, marriage forms the legal ground that serves to protect a specific social relation. If we make a parallel comparison with gambling activities, we may presume that the relation between a gambling service provider and a gambler is not necessarily a legal relation. Gambling is, *inter alia*, a form of entertainment or business activity. However, to ensure that this sort of entertainment and business activity is lawful, it is necessary to determine and apply the relevant legal grounds associated with said activity. The processing of online gamblers' data for gambling-related purposes is not necessarily lawful. The legal grounds for the processing of personal data have to be determined and applied in order to ensure the legality of such data processing. If there is no legal ground then there is no lawful data processing[560], and hence the processing of online gamblers' data would remain within the domain of business activities that are not protected by law. Thus, having a legal ground is the *conditio sine qua non* for the lawful processing of online gamblers' personal data.

[560] GDPR, art. 6.

The GDPR enshrines that in order for the processing of personal data to be considered lawful, data processing has to be based on the data subject's consent or some other legitimate basis laid down by law, whether that be in the GDPR or in other Union or national law.[561] Taking into account the fact that the GDPR is supranational law and serves to unify the national legislations of EU Member States in the field of EU Data Protection Law, the legal analysis presented in this chapter concerns the legal grounds for the lawful processing of data, as laid down by the GDPR. The relevant legal grounds are discussed, but done so in the context of the processing of online gamblers' personal data and the implementation of data maximization and data linking strategies. By doing so, the author aims to highlight what the problems surrounding the fulfillment of the requirements for the lawful processing of personal data are. Notwithstanding the fact that an implementation of data maximization and data linking strategies is privacy invasive, the analysis aims to detect opportunities for an implementation of these strategies which does not breach EU Data Protection Law. In this manner, the chapter attempts to answer whether, how, and under which circumstances, business models based on a large-scale processing of online gamblers' data could be applied without clashing with EU Data Protection Law.

The chapter is composed of four sections. After the introduction, the legal nature of gambling and its related activities (registration, commercial communication, and responsible gambling activities) is analyzed. The following section presents a comprehensive analysis of the legal grounds for the lawful processing of online gamblers' data. The discussion part concludes the chapter.

2 The legal nature of gambling and its related activities

In this subsection, the legal nature of gambling-related activities is analyzed. The focus is on the registration of players, as well as on gambling activities, gambling-related commercial communication and the responsible gambling approach. The determination of the legal nature of gambling-related activities significantly depends on the relation between the online gamblers and the online gambling service provider(s), as well as on the implementation of any relevant legislation. This analysis is carried out because the legal nature of gambling-related activities dramatically affects the lawfulness of the processing of online gamblers' personal data.

The registration procedure is a necessary step, which, after having been successfully realized, authorizes a person who intends to gamble to make use of the services offered by the online gambling service provider. The registration procedure is composed of several phases, and in general, might be carried out in several different ways.[562] The procedure is essential, and its legal nature is both complex and debatable. As previously explained, registration has to be carried out before a gambler may begin to gamble. From the perspective of a theory of contractual law, gambling activities are based on contractual relations (more about this in the subsection below), and so the registration procedure might be perceived as part of a pre-contractual phase. Registration is not a contract *per se*, but might be considered necessary for the conclusion of the gambling contract. It is a requirement imposed by mandatory gambling legislation (if we talk about gambling offers provided by gambling operators that are formally licensed in a EU Member State and whose activities comply with a particular national legislation). Registration serves to investigate whether a consumer is permitted to gamble and to ensure the legality of the conclusion and realization of the gambling contract. In other words, after having

[561] GDPR, Recital 40.

[562] For more about registration procedure see Chapter V, subsection 3.1.2.

completed the registration process, online gamblers can conclude gambling contracts with the online service provider. More precisely, they are permitted to conclude gambling contracts if there are no impediments to the conclusion of the registration process. Hence, a completed registration procedure certainly removes one set of impediments (e.g. by confirming that a consumer satisfies any nationality requirements, and requirements regarding the age threshold set for gambling). However, it should not be forgotten that online gambling service providers have to check databases of self-excluded gamblers and gamblers on time-out, and if possible, databases of medically diagnosed problem gamblers, before providing gambling services to an individual. Thus, registration is also necessary for meeting certain requirements related to the implementation of a responsible gambling approach. Bearing in mind that registration is an obligatory step that is imposed upon the relevant actors by the relevant gambling legislation, this process could also be perceived as a formal requirement and *conditio sine qua non* for the conclusion of a gambling contract. In other words, a contract regarding the provision of online gambling services would be illegal (void or nullified) without the pre-conducted registration of a consumer. Therefore, the process of registration might be viewed as an instance of interference, by the state (as a third party), into the relationship between the gambler and the gambling operator. Namely, by imposing mandatory registration, a regulator (usually the state) constrains the autonomy of the contractual parties' wills and in that way, shapes the conditions involved in the offer and acceptance of a gambling contract. Therefore, it could be said that the registration procedure belongs to the domain of contractual relations and serves to preserve the legality of the performance of a gambling contract.

The relevant elements of the gambling contract are aleatory nature of gambling, the stake of the players and the circumstances which influence the responsibilities of the contracting parties (e.g., the amount of money the player places, the lottery prize money or the main prize of the evening). The essence of aleatory nature of gambling lies in the fact that the contracting rights and obligations depend on an uncertain future event (the outcome of the game). Regarding the relevant elements of the concluded gambling contract, the contracting parties can expect to have individual rights and obligations. To conclude the gambling contract, the processing of the online gambler's data is required in order to concretize the relevant elements of the contract (e.g. financial data has to be processed to detemine a player's stake). However, by realizing the contract, the online gambling service providers collect additional data, which may then be processed for different purposes. In other words, online gambling service providers process more gamblers' data than is necessary for the conclusion and realization of a gambling contract. From a theoretical perspective, a gambling contract is concluded each time a player decides which game he is going to play and places a bet on said game, confirmed by a specific (usually affirmative) action that he/she is ready to play (for instance, by clicking the button 'play' or 'bet'). However, concerning the contemporary practice of the provision of online gambling service, the performance of the gambling contract is considerably more complicated in practice than it is in theory.

As previously explained, the registration, conclusion, and realization of gambling contracts generate various data that may be useful for profiling online gamblers. Apart from the potentially noxious sending of commercial communications, there is an undoubtedly legitimate (primarily economic) interest for online gambling service providers to profile their players and supply them with advertising materials which potentially correspond to their interests. Also, as was presented in detail in Chapter VII, processing online gamblers' data can serve to identify risky gamblers. Thus, it is reasonable to wonder what the legal grounds for collecting and processing personal data are. This issue is elaborated upon in the following section. Yet, it is important to highlight that both the provision and use of online gambling services are based on several interrelated and interwoven legal transactions (affairs). Based on the

author's hands-on experience and investigation of selected privacy policies, it could be claimed that contemporary online gambling services provide a package of various services. Namely, during the registration process, online gamblers (the first contractual party) have to accept the terms and conditions that are presented in a 'take it or leave it' manner by gambling service providers (the second contractual party). The terms and conditions not only determine the relevant aspects regarding the performance of a gambling contract (or better, contracts), but also the legal grounds for several other legal transactions, including the processing of personal data for various purposes. Apart from measures relating to commercial communication, the online gambling service's 'package' might contain measures that belong to the implementation of a responsible gambling approach. Mandatory legislation might impose the application of these measures, but they could also be based on contractual relations. Thus, it can be said that the provision of contemporary online gambling services is based on the connection between several legally relevant acts.

From a very general perspective, commercial communications should not be considered as contractual relations. They should preferably be seen as an invitation for negotiations that could lead to the conclusion of a contract or an invitation to consider offers for the conclusion of a contract. Also, advertising appeals sent to an online gambler might be perceived as an *invitatio ad offerendum,* a non-binding statement that invites a gambler to send offers for the conclusion of a gambling contract. It is worth stressing that there are two types of gamblers that may receive advertising appeals. The first type, are those gamblers that are not in any contractual relationship with an online gambling service provider. The second group are those who have already registered and gambled. This distinction is essential for at least two reasons. The first concerns an advertiser's ability to profile a gambler. The data used for the profiling process is actually collected through the performance of the gambling contract. Hence, a gambling service provider is not able to profile new consumers, who have not concluded a gambling contract. The second reason concerns the rights of online gamblers to object to commercial communication. Namely, the ePrivacy Directive enshrines the rights users have regarding unsolicited commercial communication, taking into account the relationship between a customer and advertisers.[563] In general, the ePrivacy Directive requests the presence of prior consent (often referred to as the 'opt-in' system) for the lawful sending of commercial communication to non-existing customers. In the case of existing customers, however, the advertiser shall ensure the possibility for customers to object to commercial communication through the 'opt-out' system.[564]

Finally, the concept of responsible gambling is composed of various measures. Relevant legislation will impose the mandatory implementation of certain measures (e.g. the announcement of the age threshold for gambling). Some other measures may be implemented if online gamblers accept them (e.g. the use of behavioral analytic tools for detecting gamblers at risk). Thus, the implementation of responsible gambling measures might be based on either mandatory legislation, contractual relations between service providers and online gamblers, consent, or legitimate interests, depending on the exact measure and the context.

In most cases, the relationship between an online gambling service provider and an online gambler is a contractual one. Nevertheless, the autonomy of the contracting parties (in term of will), as well as their

[563] Directive of the European Parliament and of the Council 2002/58/EC of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector [2002] OJ L 201/37 (ePrivacy Directive), art 13.
[564] Ibid.

mutual obligations and rights, are constrained by mandatory legislation. Additionally, the offers online gambling service providers make for the conclusion of gambling contracts with potential players, not only shape the terms and conditions about the performance of the gambling service, but usually impose some form of data processing for additional, legally relevant acts, such as the distribution of commercial communication and the application of responsible gambling measures. Finally, taking into account that many of the legal transactions regarding gambling-related activities involve the processing of personal data to some extent, the legal nature of gambling-related activities greatly affects the lawfulness of the processing of online gamblers' personal data, an issue which is addressed in-depth in the subsections below.

3 The lawfulness of the processing of personal data

In order to lawfully process online gamblers' data, such data ought to be processed on the basis of the data subject's consent "or some other legitimate basis, laid down by the law."[565] Apart from the data subject's consent, six additional legal grounds are enshrined in Article 6(1) of the GDPR. The purpose of this section is to analyze how the processing of online gamblers' personal data and the implementation of data maximization and data linking strategies can remain lawful. Therefore, the analysis points out the weaknesses, as well as the suitable aspects, of the relevant legal grounds, in order to find ways for lawfully processing online gamblers' personal data alongside an implementation of data maximization and data linking strategies.

3.1 Performance of the contract

As was explained above, from a theoretical perspective, the provision of online gambling services is based on a gambling contract concluded between a service provider and an online gambler. Thus, the gambling contract is the central legal transaction in this context, and all other transactions should be considered as supplemental. The GDPR provides that processing personal data is lawful if it is "necessary for the performance of a contract to which the data subject is party or in order to take steps at the request of the data subject before entering into a contract."[566] Therefore, the processing of online gamblers' personal data is lawful if it is necessary for the conclusion and realization of the gambling contract. Article 29WP, in its opinion on legitimate interests[567], provides several details about processing personal data for the performance of a contract.[568] The opinion states that there are two different scenarios when processing personal data for the performance of a contract could be considered lawful. The first set of scenarios concerns situations where the processing in question is necessary for the performance of a contract to which the data subject is party. The opinion provides the example of the processing of a data subject address being necessary for the delivery of goods purchased online, as well as the processing of credit card details being necessary for effectuating payment. As previously explained, processing online gamblers' financial data in order to concretize the stake placed for gambling is necessary for the performance of the gambling contract. Therefore, the legal ground for the lawful processing of a gambler's financial data for the stressed purpose is the performance of the

[565] GDPR, recital 40.
[566] GDPR, art 6(1)(b).
[567] Article 29 Data Protection Working Party, 'Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC', 844/14/EN WP 217, 9 April 2014.
[568] Ibid 16-18.

gambling contract. However, it has to be borne in mind that processing financial data for other purposes (e.g., for the detection of risky ways of gambling) cannot be considered lawful if it is the performance of the (gambling) contract that is provided as the legal ground for the processing of said data. The Article 29WP opinion on legitimate interest states that "it is important to determine the exact *rationale* of the contract, i.e. its substance and fundamental objective."[569] Thus, the opinion emphasizes the importance of the connection between the assessment of necessity and compliance with the purpose limitation principle.[570]

The second set of scenarios concerns the processing of data that takes place before the parties have entered into a contract. These scenarios cover pre-contractual relations, "provided that steps are taken at the request of the data subject, rather than at the initiative of the controller or any third party."[571] For instance, scenarios such as those where an online gambler has to deposit funds on his/her personal account, created for gambling purposes, before gambling starts. In this case, the processing of financial data for the depositing of funds (e.g., to transfer money from one bank account or credit card to a personal account formed for gambling purposes) might be considered in terms of a pre-contractual relation made at the request of the data subject. However, the opinion of the Article 29WP does not consider background checks (e.g., medical check-ups made before an insurance company provides a client with health insurance) or personal solvency and credit checks prior to the granting of a loan, as examples where personal data processing occurs at the request of the data subject. Finally, the opinion of the Article 29WP explicitly excludes the possibility of considering the processing of personal data for direct marketing purposes as lawful on the basis of this legal ground.[572] Apparently, to ensure the lawful processing of online gamblers' data for gambling-related commercial communication purposes, another legal ground ought to be resorted to.

Processing certain data for responsible gambling purposes, such as data about self-excluded gamblers and gamblers on time-out, is necessary for the performance of gambling contracts. Namely, self-excluded players, or gamblers on time-out, are not allowed to gamble and therefore cannot conclude a gambling contract. Thus, it could be inferred that the processing of this sort of data is necessary for the performance of gambling contracts. Also, checking databases of medically diagnosed problem gamblers (provided said database exist and are open for consultation by gambling providers) could be considered as a necessary step for the performance of gambling contracts. For example, if Carol is a medically diagnosed problem gambler it is entirely possible that her treatment would include a prohibition from gambling. Therefore, checking whether she is on a list of medically diagnosed problem gamblers prohibited from gambling would be a necessary step for a valid conclusion and realization of a gambling contract with Carol. Processing data for registration purposes might also be considered lawful under these grounds. Registration is a necessary procedure that is to be conducted before the conclusion of a gambling contract. However, prohibitions applicable to self-excluded gamblers and players on time out, much like the mandatory nature of the registration procedure, are usually imposed on gambling service providers by gambling legislation. For that reason, it may even be the case that 'compliance with legal obligations' might be used as the legal ground for lawfully processing data for these purposes. Therefore, taking into account the Article 29WP opinion, claims that assert that the gambling contract

[569] Ibid 17.
[570] Ibid.
[571] Ibid 18.
[572] Ibid.

provides the legal grounds for the lawful processing of data have limited range in this respect. Strictly speaking, it serves for the processing of that data which is necessary for the valid conclusion and realization of a gambling contract. Regarding those purposes that are related (but not essentially necessary) for the performance of a gambling contract, this legal ground cannot be used as a basis for lawfulness of the processing of gamblers' personal data.

3.2 Compliance with a legal obligation

Claiming the need to comply with a legal obligation as the legal ground for processing data depends on the necessary national legislation that a gambling operator has to comply with. The data controller would be in a position to lawfully process gamblers' data if relevant mandatory legislation imposed an obligation to engage in such processing. For instance, if a mandatory gambling legislation requires the implementation of a certain registration procedure, the data controller would be required to process gamblers' data in order to satisfy the legal requirements related to the processing of personal data for the purpose of registration. Therefore, this legal ground constrains the autonomy of both the data controller and the data subject, in respect to their decisions about the processing of data.

As concerns the pursuit of responsible gambling purposes, mandatory legislation might require that gambling service providers check databases which contain information on medically diagnosed problem gamblers, and/or databases of self-excluded players, before concluding a gambling contract. A gambling legislation may also regulate the mandatory application of responsible gambling measures based on processing real-time gambling behavioral data in order to detect risky types of gamblers. However, compliance with legal obligations should not be overrated as a legal ground for the lawful processing of online gamblers' data when data maximization and data linking strategies are concerned. Namely, the methodological setting used in this study for differentiating between data maximization and data linking strategies on the one hand, and data minimization and data separation strategies on the other, concerns the regulated scope of data that has to be processed.[573] When data is processed so to satisfy certain gambling legislation provisions or the EC Recommendation[574], then we would be talking about the implementation of data minimization and data separation strategies. Only the processing of data that goes beyond the legally mandatory scope and determined purposes, and in ways that are not enshrined by the mandatory legislation and/or EC Recommendation, corresponds to an implementation of data maximization and data linking strategies. Therefore, for the lawful processing of gamblers' data under an implementation of data maximization and data linking strategies, an alternative legal ground has to be sought.

3.3 Protection of the vital interests of the data subject

The protection of the vital interests of the data subject, or of another natural person, as a legal ground for the lawful processing of personal data "should in principle take place only where the processing cannot be manifestly based on another legal basis."[575] Namely, this legal ground applies in relation to the lawful processing of data only if such processing "is necessary to protect an interest which is

[573] For more about see the Chapter VII, subsection 3.2.
[574] The European Commission Recommendation 2014/478/EU of 14 July 2014 on Principles for the Protection of Consumers and Players of Online Gambling Services and for the Prevention of Minors from Gambling Online [2014] OJ L214/38 (EC Recommendation).
[575] GDPR, Recital 46

essential for the life of the data subject or (…) of another natural person."[576] The interpretation of a data subject's vital interest should be very restrictive[577] and therefore, it would be unusual to use the protection of vital interests as the legal ground for processing gamblers' personal data. Regardless of the level of probability for successfully calling upon an individual's vital interests as the legal ground for processing gamblers' personal data, which yardstick ought to be implemented to assess when an online gamblers' vital interests are jeopardized remains unclear. Put simply, there are no scientific, ethical and legal standards that can credibly determine when gambling-related risks and gambling behavior ought to be considered as jeopardizing interests that are essential for a gambler's life. Nevertheless, it could be argued that processing data about online gamblers whose health has eroded to the degree where any further gambling could fatally jeopardize his/her health, so to prevent them from gambling, could be based on this legal ground. However, we should bear in mind that the concept of responsible gambling serves to prevent the provocation of problem gambling. Therefore, monitoring the behavior of online gamblers who are confirmed medically diagnosed problem gamblers, in order to prevent them from gambling, ought to be considered in terms of medical treatment. It is reasonable to assume that a national legislation will regulate such treatment and that, therefore, the lawful processing of this type of gambler data could be based on another legal ground, such as compliance with a legal obligation.

3.4 Consent

The data subject's consent is the most discussed legal ground available for the lawful processing of personal data. It is not only a general legal ground, but also a specific ground that legitimizes the processing of special categories of personal data.[578] Consent takes specific forms with respect to e-privacy, e-health, e-government and contract law matters. Consent is used in different fields of law, and thus each relevant legislation shapes the notion of consent in its own appropriate way.[579] Concerning EU Data Protection Law, the GDPR defines a data subject's consent as "any freely given, specific, informed and unambiguous indication of the data subject's agreement to the processing of his or her personal data. Consent must be given by a statement or a clear affirmative action**"**.[580]

The analysis presented earlier regarding privacy policies showed that online gamblers have to accept the terms and conditions imposed by online gambling service providers in order to gamble. Terms and conditions are structured in a manner where their formal acceptance includes the provision of the online gamblers consent to their personal data being processed for various purposes. The ePrivacy Directive states that a user's consent has to be given for the processing of their data for direct marketing purposes.[581] The notion of a user's consent corresponds to the data subject's consent as defined in Directive 95/46/EC,[582] which was replaced by the GDPR.

Concerning the need to process online gamblers' personal data alongside the implementation of data maximization and data linking strategies, the following analysis focuses on the most problematic

[576] Ibid.
[577] Article 29 Data Protection Working Party, 'Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC', 844/14/EN WP 217, 9 April 2014, 20.
[578] Article 29 Data Protection Working Party, 'Opinion 15/2011 on the definition of consent' 01197/11/EN WP187, July 2013, 6.
[579] Ibid.
[580] GDPR, Art 4(11).
[581] ePrivacy Directive, art 13.
[582] Ibid, art 2(f).

conditions for satisfying the requirements for having attained a data subject's valid consent. The most substantial volume of problems regarding the validity of consent given by online gamblers concerns their limited ability to express their free will and to understand what is going on when their personal data is being processed. For that reason, fulfilling the criteria for attaining informed, specific and freely given consent is particularly tricky. Therefore, the following subsections focus on these aspects of the data subject's consent.

3.4.1 Informed and specific consent

The consent given for the processing of personal data should be informed, so to ensure a lawful processing of data. However, the concept of informed consent is contentious and difficult to determine. The opinion of the Article 29WP on consent interprets the notion of informed consent in the following manner:

> *"consent by the data subject (must be) based upon an appreciation and understanding of the facts and implications of an action. The individual concerned must be given, in a clear and understandable manner, accurate and full information of all relevant issues, (…) such as the nature of the data processed, purposes of the processing, the recipients of possible transfers, and the rights of the data subject. This includes also an awareness of the consequences of not consenting to the processing in question."*[583]

The GDPR slightly changes the notion of informed consent by stressing that "For consent to be informed, the data subject should be aware at least of the identity of the controller and the purposes of the processing for which the personal data are intended."[584] Both explanations take into consideration two requirements. The first, regarding the quantity of information that shall be provided. The second, about the quality of said information. However, the second requirement brings with it certain controversies. The information has to be structured in a way that should enable the data subject to understand the process of data processing, and therefore be aware of the consequences of said processing. What is especially problematic is the request explicitly mentioned in the opinion of the Article 29WP, that requests that the information be expressed in a way that is understandable. The essence of the problem lies in the fact that different subjects (for instance, the most important stakeholders from the online gambling domain) have different levels of knowledge, skills, and experience in general, as well as in regard to their gambling-related actives. Therefore, some of them could be viewed as laymen (e.g., players), while others, even if only from a strictly formal perspective, may have the status of professionals (e.g. data controllers). Considering this difference, it would not be too much to expect that the quality of information be structured according to the needs of non-specialists. Bearing in mind that the data subject's consent might serve as the legal ground for processing data in cases of profiling, a seemingly rhetorical and (in essence) critical question emerges – 'Can laymen understand the complexity of the profiling process?' More precisely, is it possible to communicate the relevant information regarding the profiling process in a manner which would enable laymen to understand the process to a degree that sufficiently enables them to make an informed choice about giving consent?

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[583] Article 29 Data Protection Working Party, 'Working Document 01/2012 on epSOS', 00145/12/EN WP189, January 2012, 7.
[584] GDPR, Recital 42.

The issue of explaining the profiling process forms the subject of a paper written by Wachter, Mittelstadt, and Floridi[585], about the right to an explanation on automated-decision making and its (non-) existence in the GDPR. The authors of said paper make two classifications of explanations that a data controller should provide to the data subject about the profiling process.[586] The first one is related to the explanations explanatory function, and makes a distinction between explanations regarding system functionality and those regarding specific decisions.[587] System functionality refers to the "logic, significance, envisaged consequences and general functionality of an automated decision-making system, e.g. the system's requirements specification, decision trees, pre-defined models, criteria, and classification structures"[588], whereas specific decisions are about "the rationale, reasons, and individual circumstances of a specific automated decision, e.g. the weighting of features, machine-defined case-specific decision rules, information about reference or profile groups."[589] The second classification regards the timing of an explanation. An ex-ante explanation appears before the processing takes place, whereas an ex-post explanation occurs after the processing has been carried out.[590] At first glance, it seems that these classifications cover the obligations imposed by the GDPR about informing the data subject regarding the processing of his/her personal data for profiling purposes. Nevertheless, Watcher, Mittelstadt, and Floridi express skepticism about the existence of a right to an explanation in the GDPR, presenting several compelling arguments that underpin their opinions.[591]

Taking into consideration Wachter, Mittelstadt, and Floridi's classification, as well as the business practice of the provision of online gambling services, several controversial aspects regarding informing data subjects about the processing of their personal data in relation to the profiling process might be indicated. Watcher, Mittelstadt, and Floridi claim that the GDPR regulates the right to an explanation of system functionality as 'right to be informed'.[592] Here, we face at least two problems. Firstly, system functionality is predictable only if the domain of personal data processing is detectable. If a gambler's behavior is being monitored for responsible gambling purposes, then it is necessary (among other things) to find out which type of games he/she is playing. It is reasonable to expect that the logic that would be implemented for the processing of data for the detection of risky gambling would be different if a gambler plays slot machine games than if they primarily engage in sports betting.[593] In addition to the differences between games, the problem becomes even more complicated upon the realization that there is no unified benchmark (neither in theory or practice) as to how to indicate risky gambling and problem gambling. A long history of self-exclusions might provide a warning sign as to the chances of an individual suffering from problem gambling in some instances, but in others, financial and real-time gambling behavioral data may be the most reliable indicators of risky gambling.

[585] Sandra Wachter, Brent Mittelstadt and Luciano Floridi, 'Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation' (2017) 7/2 International Data Privacy Law <https://doi.org/10.1093/idpl/ipx005> accessed 3 December 2017.
[586] Ibid.
[587] Ibid.
[588] Ibid.
[589] Ibid.
[590] Ibid.
[591] Ibid.
[592] Ibid.
[593] For more details check Chapter VII, subchapter 4.4.3

The second problem refers to the possible use of an unlimited amount of data sources as a consequence of the implementation of data maximization and data linking strategies. By implementing these strategies, it would be tough to provide the layman with a complete package of information which would describe the system's functionality. Online gambling operators could potentially source data from every data source at their disposal. However, the significant challenge is to find the correlations among the available data. Therefore, the logic behind the processing of data could vary from one instance to another. In principle, for the profiling process, elements such as 'decision tree' or 'pre-defined data modules' should been known in advance. Otherwise, it would be impossible to run a system that will profile the data subject. However, access to new types of data might necessitate changes to the logic behind data processing. For these reasons, it remains questionable whether online gamblers can *de facto* be adequately informed about the processing of their personal data.

The GDPR has, to a certain extent, objectivized the conditions for the providing information to the data subject, at least when concerned with requests concerning the fulfillment of the conditions for informed consent. Contrary to the opinion of the Article 29 WP on consent, where it is required that data subject consent (must be) based upon an appreciation and understanding of the facts and implications of an action, recital 42 of the GDPR does not impose conditions which would influence the assessment of the data subject's subjective characteristics. Moreover, the same recital only determines the lowest threshold of information that a data subject should be aware of (the identity of the controller and purpose of the processing). However, considering that the notion of specific consent is "intrinsically linked to the fact that consent must be informed"[594] problems regarding the fulfillment of the requirements for specific consent could affect informed consent.

The GDPR does not explain the notion of specific consent. However, the relevant opinions of the Article 29WP shed light on the requirements for specific consent. In the Article 29WP opinion on consent, it is stated that "to be specific, consent must be intelligible: it should refer clearly and precisely to the scope and the consequences of the data processing. It cannot apply to an open-ended set of processing activities. This means in other words that the context in which consent applies is limited."[595] Here, we face problems related to the implementation of data maximization and data linking strategies, since these strategies serve to collect and process an unlimited scope of data from various sources. Furthermore, the Article 29WP opinion on consent also states that "consent must be given in relation to the different aspects of the processing, clearly identified. It includes notably which data are processed and for which purposes."[596] Thus, it is not difficult to infer that an implementation of data maximization and data linking strategies would clash with the requirements of specific consent for several reasons. Firstly, the scope of data that would be processed at the moment of consent is unknown. Secondly, there would be a lack of clearly identified processing purposes. Processing data for responsible gambling purposes is too general to be accepted as a specific purpose. As it has been stressed so far, the concept of responsible gambling includes various measures that might serve to help gamblers practice moderate types of gambling. Any new data collected through the implementation of data maximization and data linking strategies could potentially be processed in order to detect risky ways of gambling. However, which data would be collected, and how it would be processed at the moment of consent, remains

[594] Article 29 Data Protection Working Party, 'Opinion 15/2011 on the definition of consent', 01197/11/EN WP187, 13 July 2012, 17.
[595] Ibid.
[596] Ibid.

uncertain. Data maximization and data linking strategies could assist in the reliable screening of gambling behavior. However, their implementation would depend on the processing of various kinds of personal data, including data that one may not reasonably expect to be processed in the context of online gambling services.

3.4.2 Freely given consent

In addition to problems related to informed and specific consent, satisfying the requirements set for determining freely given consent may also be problematic. In its opinion on consent, the Article 29WP stated that "consent can only be valid if the data subject is able to exercise a real choice, and there is no risk of deception, intimidation, coercion or significant negative consequences if he/she does not consent. If the consequences of consenting undermine individuals' freedom of choice, consent would not be free."[597] This opinion shapes the notion of freely given consent. However, the GDPR states that "when assessing whether consent is freely given, utmost account shall be taken of whether, *inter alia*, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract."[598] Therefore, with this article, the GDPR stipulates the contextual analysis of the situation in cases where doubts about whether consent has been freely given exist.

The consent given to the processing of personal data might raise some doubts regarding the free will of online gamblers. The gambling activities that gamblers partake in can change a gambler's reasoning about the harmful aspects of gambling and considerably influence not only his/her gambling behavior but also other aspects of his/her personal life. As it was explained in the previous chapters, chasing losses is the most indicative factor of the possible presence of problem gambling, leading to suspicions that a gambler has lost control over their gambling behavior. Thus, it would be reasonable to wonder whether a problem gambler could provide consent for the processing of personal data for gambling-related purposes in a manner that could be considered to evidence it being 'freely given'. It is reasonable to expect that a gambler with uncontrollable gambling urges would intend to access gambling offers regardless of the consequences that could be brought on by the processing of his/her personal data.

In a comprehensive and detailed study on consent in respect to European Data Protection Law, Kosta states that "the consent cannot be characterized as freely given, when legal or factual dependencies can limit the choices of the data subject."[599] She emphasizes that the data subject's freedom to decide is jeopardized, "when the balance of powers between the data subject and the data controller is uneven."[600] This view relates the balance of power (between the data subject and the data controller) with the legal ground that should ensure the lawfulness of personal data processing. Providing further clarification as to the concept of freely given consent, Kosta makes a distinction between three sorts of activities that hinder the creation of freely given consent. These are:

- involuntary actions
- external forces that prevent consent from being given freely
- voluntary restrictions to freedom

[597] Ibid 12.
[598] GDPR, Article 7(4)
[599] Eleni Kosta, *Consent in European Data Protection Law* (Martinus Nijhoff Publishers 2013) 178.
[600] Ibid.

As concerns involuntary actions, Beyleveld and Brownsword divide them into two forms – the first form refers to actions where the will is overborne, the second to voluntary actions made under pressure. Further clarification elucidates that consent can be involuntarily given when "the agent failed altogether to form a will rather than acted against its will."[601] It would not be wrong to claim that psychological problems influence an individual's ability to form a free will. An inability to form a free will could be considered as a reason for the limitation of full legal capacity. Yet, consent to the processing of personal data given by a data subject who is without full legal capacity might be problematic.

Various external factors, including commercial communication, could influence the development of medically diagnosed problem gambling. Beyleveld and Brownsword make a differentiation between negative and positive external forces that may prevent an individual from freely giving consent. Negative forces tend to have a negative impact on the interests of an individual. For instance, a threat is a form of negative external force. A positive external force serves to influence an individual in a positive manner. An example of this is inducement.[602] Commercial communications could induce a gambler to engage in a specific gambling activity that may shape their gambling behavior. Therefore, the manipulative power of commercial communication could affect a gambler's actions and have an effect on their consenting to having their personal data processed for gambling-related purposes, as well as influence them to conclude a gambling contract. Bearing this in mind, commercial communication might be considered as an external positive force. Essentially, commercial communication serves to persuade an online gambler to engage in more gambling activities. However, the manipulative level of commercial communication depends on various factors, including a gambler's personal propensity to gamble. This fact may provide an explanation for the reason why a data subject's consent obtained via the influence of an external positive force cannot be considered as legally invalid in all cases; such a conclusion would depend on the totality of circumstances in question. Risky gamblers are more vulnerable than moderate gamblers and thus more exposed to gambling-related risks, including those associated with commercial communication. Moderate gamblers are more resistant to external pressures than risky gamblers, and for that reason, their consent to the processing of their personal data should be considered as having been freely given, which might not be the case with the consent given by risky gamblers.

The third type of activity that may hinder a person from giving their consent freely is the voluntary restriction of one's freedom. The essence of a self-initiated restriction of freedom lies in the renouncement of a less important part of one's personal freedom to protect/ensure the enjoyment of a more important part. The explanation of this relation in the context of online gambling brings us back to the use of self-exclusion and time-out mechanisms. Online gamblers have several tools at their disposal in order to constrain their own actions in relation to gambling. The uses of time-out and self-exclusion mechanisms are examples of when a gambler limits his/her opportunities to gamble. Therefore, a gambler who self-excludes themselves restricts their own freedom. By doing so, a gambler preserves his/her personal autonomy (gambling restrictions are not imposed, but self-initiated), but is nevertheless prohibited from gambling for a specified period. Therefore, if this self-exclusion data were available to all accessible online gambling service providers, a self-excluded online gambler should not be able to provide his consent for the processing of their data necessary for accessing gambling services and for commercial communication purposes. What we should not forget is the personal motivation

[601] Deryck Beyleveld and Roger Brownsword, *Consent in the Law* (Hart Publishing, 2007), 141, in Kosta (n 599) 171-172.
[602] Kosta (n 599) 172.

behind such self-exclusion. Gamblers who are concerned about their gambling behavior can use this mechanism. By doing so, they limit their freedom to a certain extent (no gambling or commercial communication for a specified period), to prevent the occurrence of problem gambling and preserve their state of health. As a consequence, they are supposed to maintain their ability to provide their freely given consent for the processing of their personal data for gambling-related purposes.

The theoretical observation provided by Kosta has been used to explain freely given consent for the processing of personal data in the context of online gambling. Yet, several problems emerge in practice concerning online gamblers freely given their consent.

As previously explained, the voluntary restriction of personal freedom in the context of online gambling exists when a gambler activates a self-exclusion mechanism. However, online gamblers firstly consented to their personal data being processed during the registration procedure. When they become registered gamblers, they are allowed to use the self-exclusion mechanism. Registration in databases of self-excluded players activates the self-exclusion mechanism and factually prohibits a self-excluded individual from concluding any further gambling contracts. Therefore, it is quite reasonable to assume that an online gambler who constrains their own freedom to gamble, does so because of how their gambling behavior affects their psychological state. However, if a self-excluded gambler is concerned about his own behavior, should gambling operators be equally concerned? An answer to this question requires a profound and comprehensive analysis, elements of which have been offered in the previous chapter. A comprehensive analysis would go beyond the scope of this thesis. Nevertheless, a partial contribution to an answer would focus on problems related to online gamblers' freely given consent. If the data subject's actions (the actions of an online gambler) raise worries about the existence of psychological (gambling-related) problems, then doubts about whether consent has been given freely may arise.

It is important to bear in mind that there exists a period of time between the moment a gambler has consented to their personal data being processed for gambling-related purposes, and when they do so again for self-exclusion purposes. It is quite possible that a gambler freely gave their consent to the processing of their personal data at the time of their initial registration. However, since then, the processing of real-time gambling behavioral data, as well as other available and relevant data, has been constantly refining the profiling process.[603] It is possible to assume that the refined evaluation and profiling of the individual helped deploy sophisticated commercial communication. Commercial communication, as an external positive force, can gradually manipulate a gambler's urges and change their gambling behavior. The consent given to an online gambling service provider (data controller) that one time at the initial stage of registration, formally creates a legal ground for the lawful processing of data. At the time the consent was given, the gambler may have been a moderate type of gambler. However, after numerous gambling sessions, which influenced the development of targeted commercial communication, the gambler's behavior may have transformed from moderate, to risky, to medically diagnosed problem gambling. This scenario creates certain discrepancies between *de jure* and *de facto* situations. *De jure*, gambling operators are allowed to process an online gambler's data because of the freely given consent provided during the registration procedure. *De facto*, a gambler's behavior may have changed in the meantime, like in our example of the gambler who may have lost his/her ability to freely give consent.

[603] For more about see Chapter VII, section 2.

Based on what has been explored so far regarding consent, one could conclude that online gamblers' consent for processing personal data is quite problematic, particularly if the relevant personal data has to be processed alongside data maximization and data linking strategies. It is questionable whether the requirements for specific and informed consent could be satisfied, since data maximization and data linking strategies incentivize controllers/processors to collect and subsequently process as much data as possible. The problem regarding specific and informed consent becomes even more serious when we turn to the issue of processing online gamblers' data for responsible gambling purposes. A reliable detection of gambling behavior demands the screening of various aspects of gamblers' professional and private lives, as well as the linking of data of various kinds. Therefore, in order to enable an implementation of data linking and data maximization strategies, a data subject should consent to the processing of his/her personal data without knowing in advanced what kind of data will be processed. An individual may, additionally, be uncertain as to how his/her data will be processed at the moment they provide their consent, even though the purpose for processing said data may be perceivable - to build the most accurate picture of an individuals gambling behavior possible. These uncertainties appear to clash with the requirements for specific and informed consent. Finally, certain problems may occur concerning the fulfillment of the requirements for freely given consent. To be sure, problems regarding freely given consent might occur even if data minimization and data separation strategies were applied. Nevertheless, the probability that problems regarding freely given consent will appear are higher when data maximization and data linking strategies are implemented than when privacy protective strategies are applied.

As indicated previously, relying on data subjects' consent as the legal ground for processing online gamblers' personal data, alongside the implementation of data maximization and data linking strategies, suffers several weaknesses that hinder the lawful processing of data. The following subsection discusses the legitimate interests of data controllers and third parties, in order to reveal whether this legal ground may ensure a lawful processing of online gamblers' data when privacy-invasive strategies are applied. The subsection also analyzes the requirements that have to be fulfilled in order to ensure that the interests of data controllers or third parties are legitimate.

3.5 Legitimate interests

The legitimate interests of a data controller or third party might be relied upon as a legal ground for the lawful processing of personal data.[604] The concept of 'interest' is 'closely related' to the concept of 'purpose', as enshrined by Directive 95/45/EC and the GDPR.[605] However, an interest could be perceived as a "broader stake that a controller may have in the processing."[606] More importantly, the interests that a controller or third party may have, must be legitimate in order to serve as a legal ground for the lawful processing of data. The inclusion of the concept of legitimacy refers to the fact that the interests of data controllers and third parties should not override the fundamental rights and freedoms of the data subject.[607] A balancing between data subjects' rights and freedoms on the one side, and data controllers' interests on other, has to be made in order to investigate whether said interests can be considered to be legitimate. The opinion of the Article 29WP on legitimate interests proposes several

[604] GDPR, art 6(1)(f).
[605] Article 29 Data Protection Working Party, 'Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC', 844/14/EN WP 217, 9 April 2014, 24.
[606] Ibid.
[607] GDPR, art 6(1)(f).

elements that need to be considered when such a balancing test is carried out. The opinion explicitly states that processing personal data for direct marketing purposes, as well as for other forms of marketing or advertisement purposes, could present an instance where a data controller can be thought to have a legitimate interest in the processing of data.[608] Moreover, the GDPR also provides that processing data "for direct marketing purposes may be regarded as carried out for a legitimate interest."[609] However, that legitimate interests can automatically provide a legal ground for the lawful processing of personal data for direct marketing purposes, which would also apply in relation to gambling-related commercial communication, should not be taken for granted. The fact is that the legislator used the term 'may be' and so created the potential for its application, but not a rule for its automatic application. Apparently, it is necessary to conduct the balancing test to examine the legitimacy of the interest in question and so to establish whether it can be considered to form the legal ground for the indicated purpose.

Online gambling service providers have an interest in establishing commercial communications, so to offer and sell more gambling services. The processing of online gamblers' data in order to find out their preferences is also of interest to the gambling industry. The question, however, is whether these interests are legitimate, and whether the processing of online gamblers' data in order to develop personalized commercial communications could be considered lawful.

The Article 29WP opinion on legitimate interests provides that controllers should not be able to claim a legitimate interest in the processing of personal data in order to unduly monitor the online and offline activities of individuals, or to combine vast amount of customer data "from different sources that were initially collected in other contexts and for different purposes."[610] From the interpretation of this statement, it might be inferred that resorting to this legal ground for a lawful processing of data under data maximization and data linking strategies for commercial communication purposes is very disputable. The reason for this is that the implementation of these strategies enables the collection and processing of data for marketing purposes regardless of whether the initial purpose for collecting said data differed from the one in question. For instance, a strict implementation of data maximization and data linking strategies enables the use of social media data as well as data about medically diagnosed problem gamblers for commercial communication purposes. Such ways of processing personal data could not pass the balancing test and would probably be considered unlawful (more about the balancing test in the subsection below).

If we have data processing for commercial communication purposes on one side of the coin, then processing data for responsible gambling might be considered as being on the other. Therefore, we should raise the question as to whether processing social media data for responsible gambling purposes might be considered as being a legitimate interest for data controllers, or even third parties. However, firstly we have to resolve the dilemma as to whether online gambling service providers have an interest in processing their consumers' data for responsible gambling purposes. There is no generally accepted position as to the necessity of implementing responsible gambling approaches. Mandatory legislation may impose the implementation of some measures and mechanisms that belong within the domain of responsible gambling (e.g., prohibiting underage consumers from gambling and the application of self-exclusion mechanisms). However, some measures and mechanisms could be self-regulated. In other

[608] Article 29WP opinion on legitimate interests (n 605) 25.
[609] GDPR, recital 47.
[610] Article 29WP opinion on legitimate interests (n 605) 26.

words, it is at the disposal of online gambling service providers to decide whether to implement various mechanisms and measures for recognizing potential problem gamblers and to prevent problem gambling. Now, the question is *why* gambling operators ought to do that? One answer refers to gambling operators' business strategy for providing their services in a responsible manner, which would keep their consumers' gambling level within the boundaries of what is considered to be a moderate form of gambling. This way, a company may gain a competitive position on the market. Another potential answer concerns the public interest, and the interests of the broader community. The Article 29WP opinion on legitimate interests notices that data controllers may invoke the public interest or the interests of the wider community. Private business interests may also coincide with the public interest (to some degree).[611] For instance, intense efforts are made in the gambling industry to prevent money laundering (e.g. by recognizing and preventing players that intend to commit this type of crime from gambling). These efforts are not only beneficial for online gambling service providers, but also for the community at large. Therefore, it might be said that preventing problem gambling is not only in the (business) interests of gambling operators that include a responsible gambling approach in order to provide them with a competitive market advantage. Working towards a reduction in the prevalence of problem gamblers among the overall population, as well as in the occurrence of adverse consequences of gambling-related activities, is also of interest to the community. Taking into account that, in regard to problem gambling, the private interests of online gambling service providers coincide with the public interest, the prevention of problem gambling gains more 'weight' and could be considered as a more compelling interest than the interests of data controllers (actually gambling operators). Nevertheless, such an interest, regardless of how crucial it may be, could not automatically be declared to be a legitimate interest that may serve as the legal ground for the lawful processing of online gamblers' data. The balancing test ought to be carried out nevertheless, in order to qualify the interests as either legitimate or not.

3.5.1 The balancing test

The essence of the balancing test is to assess whether the controller's interests in processing personal data are to be considered as more important than the data subject's freedoms and rights. In other words, the balancing test serves to compare the interests of data controllers (or third parties) with the protection of the data subject's fundamental rights and freedoms. To put it simply, the test should assess which carries more weight and therefore deserves more respect. If the data controllers' or third parties' interests outweigh the protection of a data subject's rights and freedoms, then the data controllers' interests could be taken as forming a legitimate ground for the processing of the data subject's personal data. Otherwise, the interests cannot be used to form a legal ground for lawful data processing. The Article 29WP proposes several elements that ought to be considered for the purpose of the balancing test. Applying this to the context of the processing of online gamblers' personal data and the implementation of data maximization and data linking strategies, this subsection presents an analysis of the most relevant elements.

One of the key elements of the balancing test concerns the impact of the processing of personal data. The notion of 'impact' denotes a broad concept that refers to both the positive and negative consequences of the processing of personal data. The positive consequence of the processing of online gamblers' personal data for responsible gambling purposes, when data maximization and data minimization strategies are implemented, include the higher probability of being able to reliably detect

[611] Article 29WP opinion on legitimate interests (n 605) 35.

risky way of gambling and gamblers who could potentially develop problem gambling than would be the case under a privacy-preserving strategy. However, the negative impacts include the ability gambling operators have to collect and subsequently process data not only for responsible gambling purposes, but also for commercial communication purposes. This impact acts as a counterbalance to the legitimacy of data controllers' interests. The particular problematic issue is the possibility that data that was not initially processed for commercial communication purposes might end up being processed for gambling-related advertising. As a consequence, the health of an online gambler such as Bob might become endangered. The likelihood that such consequences will appear, as well as the severity of the consequences and the context of a case, should be taken into consideration. For instance, in Bob's case, receiving commercial communication might affect his health state. In Carols' case, the likelihood that such a risk would materialized is higher, whereas in Alice's case we may presume that such a risk does not exist or that the probability that said risk would occur and provoke severe consequences for her gambling behavior is very low.

The presumption about the potential consequences that commercial communication might have on Alice, Bob, and Carol in this study is based on the hypotheses set at the beginning of Chapter VII. However, in real-life situations, the data controller has to process specific personal data to assess the risks that their actions will carry for the health of the individuals concerned, as well as the likelihood of the materialization of such risk. In Carol's case (who is a medically diagnosed problem gambler) a data controller might process medical data to get information about her and to estimate facts about the risks that may occur as a consequence of sending Carol commercial communications. The data related to Carol's health belongs to what are considered 'special categories of data'. These types of data have to be processed in more specific ways than other types of data. The *ratio legis* for special protection is in the potential impacts that may occur when the data is processed. Namely, revealing the special categories of data could create a significant risk to fundamental rights and freedoms.[612] Thus, one could claim that processing this type of data also acts as a counterbalance to the legitimacy of the data controllers' interests. However, the opposite conclusion could also be reached. Namely, that processing data about Carol's health might be used to recognize her as a medically diagnosed problem gambler and so subsequently exclude her from further gambling-related commercial communication. On the one hand, processing special categories of data can be perceived as a risk to the data subject's rights and freedoms. On the other, processing data concerning online gamblers' health may have positive impacts on data subjects. The positive impacts may contribute to the legitimacy of the data controllers' interests. Yet, whether the impact would be viewed as either positive or negative, depends on the purpose of the processing of the data.

The GDPR provides that "personal data shall be collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes."[613] This provision shapes the contours of the purpose limitation principle, which is one of the fundamental principles of personal data processing. In its opinion of the purpose limitation principle, the Article 29WP examined different elements and requirements in regard to purpose limitation.[614] In general, these can be divided into two building blocks. The first of these is known as purpose specification, and is "a prerequisite for

[612] GDPR, recital 51.
[613] GDPR, art 5(1)(b).
[614] Article 29 Data Protection Working Party, 'Opinion 03/2013 on purpose limitation' 00569/13/EN, WP 203, 2 April 2013.

applying any other data quality requirement."[615] The main function of purpose specification is to set boundaries on how data controllers can process personal data. The second building block is known as the 'compatible use test'. The test shall serve case-by-case assessments in order to determine whether a further processing of data is compatible with the initial processing purposes.[616] In addition to the formal assessment, there is the substantive assessment that serves to identify both the new and original purpose of the processing of the data in question, "taking into account the way they are (or should be) understood, depending on the context and other factors."[617] In conducting compatible use tests, the Article 29WP proposes the following elements for consideration:

- the relationship between the purposes for which the data has been collected and the purposes of further processing
- the context in which the data has been collected and the reasonable expectations of data subjects as to their further use
- the nature of the data and the impact of its further processing on data subjects
- the safeguards applied by the controller to ensure fair processing and to prevent any undue impact on data subjects[618]

The important matter here is that the Article29WP opinion on legitimate interests emphasizes that a more specific and restrictive context of data collection, with more limitations on data use, may be likely to contribute to the legitimacy of the data controller's interests.[619] Thus, the context of data processing ought to be taken into consideration to assess whether a data subject may reasonably expect "(…) stricter confidentiality and stricter limitation on further use."[620] In other words, whether an instance of personal data processing satisfies the requirements for passing a compatible use test has to be taken into account. Additionally, the GDPR proposes that 'reasonable expectations of data subjects based on their relationship with data controllers' shall be taken into consideration to assess whether a data controller's interests override the data subjects' fundamental rights and freedoms.[621] Thus, the following part gives particular attention to the notion of data subjects' reasonable expectations.

3.5.2 The reasonable expectations of data subjects

The reasonable expectations of the data subject refer to a complex standard that is prone to receiving various interpretations. In order to explain this notion of the reasonable expectations of the data subject, Article 29 WP opinion on purpose limitation states that what ought to be analyzed is "what a reasonable person in the data subject's situation would expect his or her data to be used for based on the context of the collection."[622]

[615] Ibid, 11.
[616] Ibid, 21.
[617] Ibid, 21.
[618] Ibid, 23-26.
[619] Article 29WP opinion on legitimate interests (n 605) 40.
[620] Ibid.
[621] GDPR, recital 47.
[622] Article 29WP opinion on purpose limitation (n 614) 24.

The reasonable person (or the reasonable man) is a legal standard used in Common Law that derives from Roman Law. In Roman Law, it was known as *Bonus Pater Familias*[623] – an abstract legal standard which determines the level of care of a subject in a legal transaction. Yet, no unified interpretation exists for this standard. The standard has been the subject of debate since its conceptualization in Roman Law and, therefore, its practical use has to be discussed on a case-by-case basis. Some legal scholars, as well as practitioners, interpret this standard in an 'objective manner'. In other words, contemporary legal standards which derive from the original *Bonus Pater familias* (e.g., good host, the average consumer, reasonable man) determine the level of care that is typical for an ordinary man. The notion of the average consumer appears in the national private laws of EU Member States, as well as in EU Law. The CJEU takes the concept of the average consumer to be the benchmark for a consumer who is reasonably well-informed, as well as reasonably observant and circumspect.[624] Nevertheless, this standard is rarely interpreted in the same way among the national systems of every EU Member States.[625] Thus, Mak states that the notion of the average consumer "can be regarded as a pluriform concept."[626] Therefore, we will make a distinction between the objective and subjective interpretation of this concept.

The objective interpretation of the reasonable man refers to the average level of care a natural person is expected to take. Namely, if any dispute occurs about a legal action, the competent forum which applies the objective interpretation of this legal standard shall take into consideration the level of care (and therefore expectations) that would be expected from a neutral person, i.e., an ordinary man who is not involved in the dispute. The lack of that level of care generates a lower level of responsibility, which is also known as ordinary negligence, or even *culpa lata*.[627] Nevertheless, there exist different views on this legal standard. Namely, some legal scholars think that personal responsibility ought to be evaluated according to subjective criteria. The proponents of this view insist on posing the question as to whether the perpetrators of the damage, in respect to their abilities, could have noticed the unlawfulness of their action and the eventual occurrence of the damage, and whether they could have acted according to such knowledge. The perpetrators would only deserve to be personally reprimanded (i.e. they are considered guilty) if they were sufficiently able to avoid the damage, but did not do so due to a lack of will.[628] On the one hand, the supporters of this subjective interpretation think that the objectivization of standard of care leads to the mixing up of the unlawfulness of the act with the guilt of its perpetrator.[629] On the other hand, the supporters of an objective interpretation think that proving what occurred in terms of the actual will of the individual and what the level of care could have been, in any case, may

[623] Duhaime's Law Dictionary <http://www.duhaime.org/LegalDictionary/B/Bonuspaterfamilias.aspx>, accessed 22 September 2017

[624] Vanessa Mak, 'Standards of Protection: In Search of the 'Average Consumer' of EU Law in the Proposal for a Consumer Rights Directive' (2010) TISCO Working Paper Series on Banking, Finance and Services 04/2010, 4 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1626115> accessed 23 December 2017.

[625] Ibid 5; Vanessa Mak 'The 'Average Consumer' of EU Law in Domestic Litigation: Examples from Consumer Credit and Investment Cases' (2011) TISCO Banking, Finance and Working Paper Series 003/2011, 4 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1960603> accessed 23 December 2017.

[626] Mak (n 624) 6.

[627] Jakov Radišić, *Obligaciono pravo* (Nomos 2008), 219.

[628] Helmut Koziol, *Osterreichisches Haftpflichtrecht* (Band I, 2. Auflage, Wien 1980), 128.

[629] Ibid 129.

create problems for the relevant/competent forum when it comes to apply the standard of reasonable man, jeopardizing the principle of legal certainty.[630]

The Article 29WP does not determine the notion of the reasonable person, but advocates for the analysis of each context in relation to the collecting and processing of data. This is undoubtedly a rational approach, because it is hard to imagine a unifying principle which could determine the level of care, let alone the expectations, of a reasonable man that would be applicable in each possible case. However, whether it is possible to determine what the expectations of a reasonable man are in terms of the processing of online gamblers' data (and if so, in what way), remains vague. There are two reasons for this situation. The first, is the general lack of standards regarding the implementation of responsible gambling approaches. The second, concerns the undetermined situation as to the prioritization of protection (personal data vs personal health).

Notwithstanding several weaknesses (that are elaborated upon in the discussion part of this chapter) resorting to the legitimate interests of the data controller or third-party is the legal ground that could enable the lawful processing of online gamblers' personal data when data maximization and data separation strategies are applied. The fact is that the application of this legal ground dramatically limits the autonomy of the data subject in respect to their decision as to the processing of their personal data. However, this is compensated for by taking into account the interests and rights of the data subject. From a purely theoretical perspective, such an approach is desirable. By restricting the autonomy of online gamblers in relation to their decisions regarding the processing of their personal data, risky gamblers would lose the possibility to avoid measures which serve to limit their gambling, by manipulating decision makers in respect to issues relating to the processing of their personal data (e.g. by insisting on the use of pro-privacy oriented solutions and safeguards such as the implementation of data minimization and data separation strategies). However, to protect the rights and interests of data subjects, and to ensure that the interests of data controllers are legitimate, a balancing test, which includes several elements that are prone to being interpreted in entirely contextual ways, has to be passed. Through the application of this test, a diversity of factors can be evaluated, and therefore, the protection of online gamblers and their personal data can take into consideration distinctions between different gambling behaviors.

4 Discussion

The implementation of data maximization and data separation strategies can potentially provide more benefits to the responsible gambling approach than the application of privacy-preserving strategies. However, as was presented in this chapter, the impact that the processing of personal data can have when these strategies are implemented might also be harmful, depending on the purpose of the processing of said data. Sophisticated profiling processes used for commercial communication purposes bring with them their own specific risks. The application of privacy-invasive strategies not only encroaches upon personal privacy, but might lead to a provocation of problem gambling. For that reason, the lawful processing of online gamblers' data alongside an implementation of data maximization and data linking strategies is an issue that raises debate. All of the legal grounds for personal data processing proposed by the GDPR, except the performance of a task carried out in the public interest, could be used for claiming the lawful processing of online gamblers' personal data.

[630] Radišić (n 627) 120-121.

However, their range and relevance for the lawful processing of data mainly depend on online gamblers' data and the processing purposes at play.

Mandatory national gambling-related legislations impose the implementation of certain responsible gambling measures. Compliance with said legal obligations can serve as the legal ground for lawfully processing data, especially when the relevant legislation regulates the processing of online gamblers' data for responsible gambling purposes. However, as was already pointed out, when the relevant legislation regulates the processing of data for particular purposes, then the implementation of a data minimization and data separation strategy is implied. For instance, the registration procedure is obligatory for the performance of a gambling contract, and hence compliance with this legal obligation provides the legal ground for the lawful processing of data for registration needs. Gambling-related legislations usually impose a requirement for service providers to check databases of self-excluded gamblers and gamblers on time out before providing online gambling services to individuals. However, we should not forget that one of the main features of the gambling regulations in the EU is their fragmentation. Thus, a Member States' national gambling legislations regulate the activities of the gambling operators that are licensed in that state. Therefore, to comply with the obligations set by the national gambling legislation, a gambling operator must check the available databases of self-excluded gamblers and players on time out, that are managed by the licensed gambling operators in the state, or to check the central register, if one exists. It is not reasonable to assume that the national gambling legislation would require gambling service providers to check the databases of service providers that are not licensed in the state because, from a formal point of view, online gambling service providers licensed in other jurisdictions are considered as illegal service providers. Nevertheless, for the performance of a gambling contract, it is necessary to check whether any impediments to the performance of the gambling contract exist. For instance, a gambling operator formally licensed in State A has to determine whether Bob is a self-excluded gambler or medically diagnosed problem gambler before concluding a gambling contract with him. For that purpose, the gambling operator must check his own databases, the databases of other service providers licensed in State A, or the central register established by State A (if we assume that these obligations are laid down by the gambling legislation of State A). However, if the gambling operator has access to databases of self-excluded players that are managed by service providers licensed in States B and C, then it would be reasonable to check them despite the fact that the gambling legislation of State A formally considers the online gambling service providers licensed in States B and C as illegal. Therefore, the performance of a gambling contract might be used as a legal ground for the lawful processing of gambler data that is accessible and that does not require to be processed according to national gambling legislation.

The valid conclusion of a gambling contract should include the pre-contractual processing of data for the removal of obstacles in the way of its conclusion. However, during the realization of the contract, a processing of the gambler's data (e.g. real-time gambling behavioral data) might indicate a risky way of gambling or problem gambling. The detection of problem gambling could create a situation in which the further processing of data for commercial purposes would be illegitimate, and potentially illegal. Namely, if the online gambling service provider detects a potential risk of problem gambling, then further data processing for commercial communication purposes (as well as commercial communication itself) should be stopped. Nevertheless, what the legal grounds for the lawful processing of real-time gambling behavioral data for responsible gambling purposes are, remains questionable. The online gamblers' consent is quite a problematic ground due to requirements associate with the provision of informed, specific and freely given consent. Furthermore, the GDPR states that "when assessing

whether consent is freely given, utmost account shall be taken of whether, inter alia, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract."[631] Therefore, with this article, the GDPR stipulates the contextual analysis of the situation in cases where doubts about the consent being freely given exist. Whereas the implementation of specific responsible gambling measures is necessary for the performance of a gambling contract, gambling-related commercial communication is apparently not necessary. However, the business practice of providing gambling services includes commercial communication as part of the package. Taking into account that gambling-related commercial communication might influence the conclusion of a gambling contract, the performance of which may provoke adverse effects, including those that affect personal autonomy and legal capacity, the assessment of whether consent has been given freely by online gamblers should be carried out with particular care. Another problem is that it is entirely possible for a moderate gambler to become a problem gambler after initially consenting to their personal data being processed (upon registration). Such consent can no longer be said to be valid, and so the whole basis for the processing of his/her data (for both purposes – the provision of gambling services and commercial communication) would melt away. Nevertheless, making a practical determination as to when the consent lost its validity presents a significant challenge. It seems that assessments as to the validity of consent have to be frequently carried out. However, such a *modus operandi* may result in a practice that could hinder the provision of regular online gambling services.

Legitimate interest, as a legal ground, is the most favorable legal basis for the lawful processing of online gamblers' data when data maximization and data linking strategies are applied. Assessments made by balancing between the legitimacy of a data controller's interests and the protection of data subjects' rights and freedoms, provides more opportunities in respect to the specific context of online gambling. However, the legitimate interest balancing test is quite a complex test, which includes a compatible use test (that is a part of the assessment of purpose limitation). Without intending to go into an indepth comparative analysis of these balancing tests, it suffices to say that the conditions of these two tests significantly overlap.[632] And so we arrive at a point when we should raise the question as to whether a completed compatible use test is essential for passing a legitimate interests balancing test. Again, there is no 'yes or no' answer to this question. The compatible use tests shall assess the relationship between the purposes for which data has been collected and the purposes of further processing.[633] The relation between the 'initial' purpose and the 'further' purpose for data processing is scalable. The 'closer' the relation is, then the lower the probability of said processing breaching the purpose limitation principle. As a consequence, the chances of declaring the relevant data controllers interests as being legitimate interests, which may serve as the legal ground for the lawful processing of data, are higher.

We may assume that processing online gambler data for 'further' (new) purposes that are very 'far away' from the 'initial' purposes for which the data had been collected, violates the purpose limitation

[631] GDPR, art 7(4).

[632] Lokke Moerel and Corien Prins, 'On the Death of Purpose Limitation' <https://iapp.org/news/a/on-the-death-of-purpose-limitation/> accessed 23 December 2017.

[633] The Article 29WP opinion on the purpose limitation principle proposes a substantive analysis in order to not only reveal the relations that exist between situations where further processing was "already more or less implied in the initial purposes", but also between those where further processing is "assumed as a logical next step in the processing according to those purposes", and "where further processing (…) is only a partial or even non-existent link with the original purposes.", 24.

principle. However, 'the long-distance' between the initial purpose and the new purposes for processing gamblers' data, may also contribute to the protection of online gamblers' rights and freedoms. For instance, processing the residential address data of online gamblers has an important function in the registration process. Processing residential address data serves to presume the nationality of the gambler in question or their possession of a residence permit. Strictly speaking, the goal of the registration procedure is not only to register a new consumer and to confirm his/her identity, but also to examine whether the consumer satisfies the relevant legal conditions for gambling (possessing a particular nationality or residence permit could (dis)qualify the consumer for access to the gambling service offered by a particular online gambling service provider). Processing residential address data for registration purposes may also reveal certain demographic features related to a gambler. Demographic and socio-cultural features may correlate with gambling behavior.[634] Thus, gambling operators may use this kind of information for responsible gambling purposes. In addition, processing relevant data from social media might also be useful for responsible gambling purposes. Apparently, processing data collected on social media for responsible gambling purposes may clash with the original purposes of data collection. Notwithstanding the fact that the processing of data in this way breaches the purpose limitation principle, this kind of processing might negatively affect whether the data controllers' interests are considered legitimate or not. Namely, by contributing to a responsible gambling approach, gambling operators protect their consumers. By doing so, they contribute to the strengthening of online gamblers' (data subjects') rights and freedoms and strengthen the legitimacy of their (data controllers') interests (that further lead to the assumption that processing online gamblers' data in this way could be considered lawful).

Although a violation of the purpose limitation principle could benefit the protection of online gamblers, it could also provoke the reverse effects. Namely, if the principle is violated and, consequently, online gambler data is processed for commercial communication purposes, then not only is the domain of personal privacy endangered, but that of personal health is also placed at risk. Thus, considering the context of the processing of online gamblers' personal data when privacy-invasive strategies are applied, a violation of the purpose limitation principle may bring both positive and negative consequences. To overcome this dichotomy, the application of proper safeguards could help. The Article 29WP opinions on legitimate interests and on the purpose limitation principle propose an assessment of the safeguards that ought to be taken into consideration as part of the balancing test.[635] One of the appropriate safeguards that would contribute to the legitimacy of data controllers' interests is an implementation of a data separation strategy. Notwithstanding the general hypothesis that data separation strategies hinder the detection of risky ways of gambling, an implementation of this strategy not only contributes to the protection of personal privacy, but also helps develop of responsible gambling. Considering that the implementation of data maximization and data linking strategies leads to the collection of a broad scope of online gambler data, this data might be processed for both responsible gambling and commercial communication purposes. It would be beneficial if the responsible gambling departments in a company that provide online gambling services would process gamblers' data independently from the departments in charge of commercial communication. In other words, appropriate organizational and technical measures should be in place to hinder the possibility of data that has been collected and processed (by the implementation of privacy-invasive strategies) for responsible gambling purposes

[634] More about in Chapter VII, section 4.1.2.

[635] Article 29WP opinion on the legitimate interests (n 605) 42-43; Article 29WP opinion on purpose limitation (n 614) 26-27.

being somehow processed for commercial communication aims. Yet, it might also be beneficial if the data processed for responsible gambling purposes is used to adapt commercial communication in a way that would minimize the risk of worsening the recipients gambling behavior. This way, the application of privacy preserving strategies, particularly a data separation strategy, would limit the scope for the processing of online gamblers' data for commercial communication purposes, and lead to a lack of opportunities for possible violations of the purpose limitation principle. Taking into account that data separation strategies constrain commercial communication and strengthen responsible gambling approaches, their implementation may lead to legitimate data controller interests and ensure the lawfulness of the processing of online gamblers' personal data.

The essence of the legitimate interests balancing test is to weigh the importance of the data controller's interests on the one side, and the data subject's rights and freedoms on the other. If the compatible use test has been passed, then it might be assumed that the purpose limitation principle has been respected (under the presumption that the purpose specification principle is also respected). In the opposite situation, the rights and freedoms of the data subjects would be endangered and so further affect the legitimacy of the data controllers' interests. However, the possible advantages of siding with the data controller's interests may outweigh the advantages of protecting the data subjects' rights and freedoms. Therefore, it is possible for a data controller's interests to become legitimate despite some of the data subjects' rights and freedoms not being fully respected. However, we should bear in mind that the protection of some data is stricter. For instance, in order to legitimately process medical data, the data controller's interests would have to be more compelling than they would have to be in cases regarding non-medical data.

From what has been presented above, one could conclude that it is possible to lawfully process online gamblers' data whilst implementing data maximization and data separation strategies. Nevertheless, this claim only concerns the implementation of these strategies alongside a processing of data for gambler protection purposes and an application of a responsible gambling approach. In general, the lawful processing of data alongside an implementation of these strategies should enable the profiling of online gamblers for recognizing risky ways of gambling or instances of problem gambling. If these risky and problematic instances are encountered, then further gambling contracts would not be concluded, some players would be warned about their gambling behavior and advised to ask for professional assistance, and commercial communications would not be established, or would at least be structured in a way that does not negatively affect the relevant individual's gambling behavior.

EU Data Protection Law imposes limitations on extreme ways of processing personal data. Nevertheless, data protection law has its own limits, and it would be beneficial to respect the specific context of the provision of online gambling services. One of the principles related to the processing of personal data is data minimization. However, this study demonstrates that EU Data Protection Law does not require a strict application of the data minimization principle. Moreover, the study shows that the processing of online gamblers' personal data under privacy invasive strategies may, to a large extent, be considered lawful. Nevertheless, the analysis of another principle related to the processing of personal data – the purpose limitation principle – might lead us to the conclusion that an implementation of data maximization and data separation strategies could hardly be considered lawful. However, if the compatible use test (as an essential element that has to be taken into consideration when investigating the purpose limitation principle) is considered as part of the legitimate interests balancing test, then the conclusion about the lawful implementation of these strategies could be different. The balancing test,

which assesses whether a data controller's interests can be considered legitimate or not, observes a wide circle of relations and interests. For that reason, evidencing a legitimate interest permits the lawful processing of large-scale data, if such a *modus operandi* benefits data subjects' rights and freedoms. Nevertheless, carrying out a balancing test in every particular case, in order to investigate the lawfulness of an instance of data processing, seems like a monumental (if not unachievable) task in a data-driven environment. The tests' requirements are general and extremely context-dependent. Moreover, the diversity of interpretations of legal concepts such as the reasonable person, contribute to the complexity of engaging in such testing. Additional complications arise due to the fact that responsible gambling is a concept that is prone to various interpretations. Moreover, the exclusivity given to EU Member States to regulate their own gambling-related issues, has resulted in a diversity of regulations around the application of responsible gambling policies, principles, and measures in the EU. Therefore, when, under which circumstances, and which online gamblers' rights and freedoms are protected by a responsible gambling approach, are questions that remain unanswered. However, responsible gambling is an evolving concept, and its imperfections should be tolerated. Hopefully, these will be overcome in future.

Chapter IX – Conclusion

The conclusion is the final chapter of this study. In the following pages, we primarily sum up what has been presented so far in the study. By providing this summary, the author further clarifies the presented facts and provides some final answers as to the research sub-questions. In the second part of the conclusion, we present the most important lessons from this study. Aiming to provide an answer as to what has been learned during this study and what the basic message of this study is, the second part of the conclusion answers the central research question. The conclusion ends with a section containing recommendations for regulators and online gambling service providers, as well as suggestions for further research.

1 Summary

The structuring of the context of online gambling required the analysis of several relevant facts. First of all, a look into the history of gambling evidenced the difficulties involved in determining when gambling first appeared. Put simply, the phenomenon is extremely old. But, since its appearance in Europe, gambling became popular among the different social classes and throughout all historical epochs, regardless of whether it was seen as a destructive or progressive factor for a society. Regardless as to how gambling is understood, whether as a form of entertainment, social interaction, a way to easily earn money, or even as a socially undesirable phenomenon, gambling has always been widespread. If we personified gambling, we would probably be presented with a stubborn and persistent person, but one with attractive qualities, who has constantly and unstoppably had an effect throughout the history of Europe. Therefore, it is the controlling of gambling that every European society throughout the ages has faced as challenge. The constant presence of gambling within society comes as a consequence of the continuous development and improvement of gambling. The contemporary development of gambling is tied to the exponential development of new technologies. As a result of the convergence of gambling with new technologies, online gambling entered the scene, whose popularity, market and profits are constantly growing. Yet, on the flip-side of the positive economic parameters associated with the development of gambling both throughout history and today, are the negative social consequences that gambling may bring. Namely, the development of gambling, and increases in its popularity, is accompanied by an increase in the number of gambling addicts as well as other negative consequences, such as the prevalence of gambling-related crimes. On the one hand, the development of gambling influence increases in revenue for this lucrative industrial branch. On the other, the negative social consequences of gambling are an omnipresent side effect of the growth of gambling as an industry. Therefore, regulating gambling presents us with a huge challenge. A liberal approach soon results in the piling up of negative social consequences. Yet, history shows that restrictive approaches and bans are short-lived and, in fact, can never be fully implemented.

The regulation of online gambling in Europe is based around EU Member States having exclusive control over how to regulate gambling at the national level in accordance with their own national interests and policies. The CJEU has legitimated such an approach and, as a consequence, we now have 28 EU Member States with 28 non-harmonized national legal frameworks which regulate gambling, including online gambling. Considering that the provision of online gambling services can hardly be bound by

national and political boundaries, the efficiency of the current legislative approach taken by EU Member States in respect to regulating online gambling is questionable. Whether the questionable efficiency of a regulatory approach is to be tolerated as the price to be paid so to allow states to establish exclusive national control over one of the most lucrative businesses of today, remains unclear.

The negative consequences of online gambling can jeopardize the social relations, wealth and personal health of a gambler. These consequences may vary in intensity and are viewed differently depending on one's perspective, due to both the diverse cultural and social standards which exist among different societies, and the lack of a consensus as to the scientific criteria for determining problem gambling. Therefore, there is no uniformity in respect to either the comprehension of the negative consequences of gambling or their evaluation. The term problem gambling broadly covers the negative consequences of gambling which affect the private and professional fields of a gambler. Therefore, this study uses this term as a semantic determiner for the negative consequences of gambling that affect gamblers.

One of the relevant potential responses to the piling up of negative harmful consequences which arise from online gambling is the implementation of a responsible gambling approach. This concept refers to a set of policies, principles and practical measures whose application tends to keep the level of gambling within the boundaries of what is considered to be a socially acceptable and desirable way of gambling. The application of a responsible gambling approach is aimed at helping individuals maintain a moderate way of gambling; a level of gambling which does not jeopardize the private and professional spheres of gamblers. A responsible gambling approach is based on proactive action, with the aim of preventing the occurrence of problem gambling. This concept is currently in its evolutionary phase, but its contours are recognizable, and some of its main principles are well developed. The basic principles of responsible gambling are based around the position that the key stakeholders in the domain of gambling need to work together. Their cooperation is beneficial for ensuring that gambling standards, policies, legal acts and measures are, as much as possible, based on scientific and empirical evidence. Yet, in order for responsible gambling to shake off any accusations of it promoting an exclusively paternalistic approach, this concept nevertheless promotes the recognition of the fact that the ultimate decision to gamble or not, belongs exclusively to the gambler. However, gamblers have to be properly informed in order to decide whether to gamble or not, and every unjustified intervention concerning gambling-related decisions is not likely to promote responsible gambling.

In order to gain an insight into the possible existence of various forms of gambling behavior, a gambler's data has to be processed. The provision of online gambling activities itself is based on processing a large amount of gambler data and gambler activity. Online gambling service providers gather and process this data for various purposes. This includes the processing of gamblers' data for creating commercial communication purposes. The advertising of gambling services is certainly a legitimate business interest of gambling operators. Yet, regardless of the methodological shortcomings of research conducted in the field of gambling, such studies have demonstrated that there is a correlation between the provocation of problem gambling and commercial communications. Gambling-related commercial communications are particularly dangerous for so-called vulnerable groups of gamblers. In addition, emerging technologies enable the profiling of users and the creation of sophisticated commercial communications which target both the personal preferences and personal habits of service users. Profiling, as a process, generally brings with it various risks. Taking into account the context of the profiling of online gamblers for the purpose of creating commercial communications based on behavioral advertising, the negative

aspects of the profiling of gamblers related to the increased risk of the provocation of problem gambling.

Research into privacy policies from 11 selected online gambling service providers has shown that service providers have different ways of collecting data. These ways can be divided into three groups: In the first, service providers collect data through users consciously delivering their data to service providers (e.g. by filling out various forms); the second concerns the use of cookies, which primarily follow the behavior of gamblers in the online environment, a fact that gamblers themselves may not often be aware of; the third channel for collecting data is via third-party services. However, the collection and processing of gamblers' data can be symbolically presented as a double-edged sword. On the one hand, data from online gamblers is a valuable source of information used for profiling and for creating commercial communications based on behavioral advertising. On the other, the processing of online gamblers' data can also be used to indicate whether the gambling behavior of a gambler points to the possible occurrence of problem gambling and can, thus, be used for responsible gambling purposes.

Regardless of the effects of the processing of personal data, this procedure is useful for identifying gamblers. Identification can be understood as the determination of the most common identifiers of a natural person such as one's name, surname and nationality, but also as the recognition of that person's other characteristics and the creation of the wider image of that person. One's identity includes both the perception of third parties and that person's own perception of him/herself. Therefore, identification is a complex process which provides valuable data on the person and their characteristics both in the offline and online environment. The identification of a person can provide valuable information as to the gambler him/herself, the further processing of which may serve to protect him/her from the negative consequences of gambling. Of course, the obligation to identify a person is, in certain cases, imposed by law, with such an imperative also existing in the domain of online gambling. In addition, the identity of a person also includes that person's perception of him/herself, and so valuable information can be obtained as to whether the gambler perceives his/her own gambling behavior as risky. Therefore, the application of self-exclusion mechanisms can, on the one hand, contribute to the creation of a more complete image of a person's identity and of his/her gambling behavior, and contribute to the prevention of problem gambling on the other.

Nevertheless, identifying a person for the purposes of comprehending their personal characteristics and qualities and, his/her gambling behavior, is based on the processing of personal data that can, potentially, have a negative effect on that individual's domain of personal privacy. For that reason, a big challenge is to create strategies for the processing of data which do not jeopardize personal privacy, or which only encroach upon personal privacy in an acceptable way. By combining the organizational, technical and legal aspects of the protection of personal data, Jaap-Henk Hoepman has created strategies and tactics relevant for privacy design. More precisely, his strategies contribute to the development of the privacy by design concept, whose principles are defined, and application regulated, by the GDPR. Even though Hoepman's strategies are abstract, they are practically applicable (as he himself demonstrated in relation to software development cycles). Nevertheless, if the processing of online gamblers' data is already presented as a double-edged sword, it is rational to assume that the strict application of pro-privacy solutions may also create some negative consequences. Those consequences primarily concern a decrease in the possibilities available for achieving a better understanding of certain characteristics of gambling behavior and for the possible application of responsible gambling measures.

In order to connect the application of a responsible gambling with the processing of gamblers' data, the application of two of Hoepman`s strategies (data minimization and data separation) and their antipodes (data maximization and data linking) was analyzed. The analysis of the application of the strategies in the context of the processing of online gamblers' data involved presentation of hypothetical scenarios. (that show the possible application of the strategies). Yet, the presented scenarios aimed to depict the differences in respect to the possible consequences of the application of the strategies in the most striking way. The consequences of the application of the strategies have an important role in respect to the process of profiling gamblers for either commercial communication or responsible gambling purposes. The analysis of the privacy policies of the 11 selected online gambling service providers evidenced how service providers process various sorts of data for the registration of gamblers, commercial communication and gambler protection. By introducing three hypothetical gamblers with distinctively different characteristics of gambling behavior – Alice, Bob and Carol – it was shown that the detected data can be put into different groups, and that processing said data via the implementation of the selected strategies may provide a wide range of information.

The analysis of how the strategies may be applied showed how the implementation of a data maximization strategy enables the collection and processing of more data and for more purposes, than is the case with the implementation of a data minimization strategy. The application of a data maximization strategy not only enables the processing of data retrieved from new sources, but also the processing of existing data for purposes other than those which were initial envisioned. As a result, data controllers are presented with a higher chance of distinguishing between moderate online gamblers (Alice), risky gamblers (Bob) and problematic gamblers (Carol). This result is enhanced by the application of a data linking strategy, which seeks to link the data kept by two or more data controllers. The application of data linking as well as data maximization strategies, has a particular significance for the processing of data which does not directly refer to gambling activities, but that can nevertheless be a significant indicator of problem gambling. More precisely, by processing data which provides information on the personal or even professional status of gamblers, their image (profile) is completed and so the data controller has more of a chance of detecting whether problem gambling is present in their behavior, and if so, in what form. However, the implementation of data maximization and data linking strategies also contributes to more sophisticated forms of profiling for commercial communication purposes, which could potentially clash with a responsible gambling approach. Likewise, concerns arise regarding the application of data maximization and data linking strategies, and the consequences this has in respect to preserving online gamblers' personal privacy, or more accurately, in respect to personal data protection.

Even though it appears as if the application of data maximization and data linking strategies rapidly violates EU Data Protection Law, the legal analysis conducted in this study has shown that the implementation of these strategies, or more precisely, data processing for the purpose of implementing these strategies, can be legal. The legal grounds for the lawful processing of personal data are regulated by the GDPR. The legal analysis showed that the majority of the legal grounds in the GDPR can be relevant for the lawful processing of data when privacy invasive strategies are applied. First of all, the legality of the processing of online gamblers' personal data is not disputable when data is processed for the purpose of applying responsible gambling measures which are regulated by mandatory legislation. Second, the provision of online gambling services is based on a contractual relationship between the service provider and the gambler. Data processing for the performance of the gambling contract is a legal ground for the lawful processing of data, if it is necessary for the performance of the contract. Yet,

the problem related to the application of this ground lies in the fact that the application of a large number of measures from the domain of responsible gambling cannot really be considered as necessary for the conclusion and realization of a gambling contract. Data subjects' consent, as a third alternative legal ground, is not the most suitable ground for the lawful processing of online gamblers' data when data maximization and data linking strategies are applied. This is because there are many problems in respect to determining whether the requirements for ascertaining the validity of the consent have been fulfilled. Those problems are primarily concerned with the required aspects of informed, specific and freely given consent. Finally, the legal analysis showed that 'legitimate interest', as a legal ground, is less disputable than other legal grounds concerning the lawfulness of the processing of online gamblers' data. However, the complexity of the balancing test, which has to be conducted in order for the interests of data controllers or third parties to be considered legitimate, complicates the application of this ground. The legitimate interests balancing test has been proposed by the Article 29WP. To conduct this test a considerable number of elements, including a compatible use test, have to be analyzed in the context of data processing. Therefore, this legal ground may potentially enable the lawful processing of data carried out alongside data maximization and data linking strategies, but only once a complex balancing test has been conducted.

2 The most important lessons learned from the findings

Gambling is a phenomenon which is constantly evolving and every radical approach regarding the regulation of gambling is, most likely, unsustainable. Due to this, it is necessary to create a balance between the pursuit of gambling, and the lucrative interests of both the gambling industry and the state, whilst seeking to avoid the negative social consequences which arise from gambling. There are many ways to contribute to said balance. The regulation of the processing of gamblers' personal data is one way which influences the interests of the main stakeholders.

The profiling of online gamblers is based on the large-scale processing of personal data. This procedure then creates new data. Profiling for commercial communication purposes aims at recognizing the specific interests of gamblers in relation to content. After that, the online gambling service provider provides advertising material to the online gambler which may suit his/her interests. The reaction of the gambler to the advertising appeal generates new data, which is further processed for the purpose of creating more sophisticated commercial communication. This essentially creates a never-ending process which is based on the collection and processing of gamblers' data and where each new data in perspective influence the creation of new sources of information. Therefore, the assumption is that the further profiling of gamblers will always render a more sophisticated profile.

However, even though commercial communication is a legitimate business interest of online gambling service providers, research has determined a correlation between commercial communication on the one hand and the occurrence of problem gambling on the other. For that reason, commercial communication is considered a risk, which may influence the development of the negative consequences of gambling. Therefore, the processing of online gamblers' data, and their profiling, must be approached with a view to its significance in the application of responsible gambling measures and the prevention of problem gambling, which can mitigate the risks online gamblers experience. We can conclude that the processing of gamblers' data has the potential to become one of the main weapons in the fight against the negative aspects of online gambling. The claim can be supported by the fact that we

will have more and more data, as well as new technologies, that create endless possibilities for data processing.

The fact remains that the processing of personal data can jeopardize personal privacy. Yet, the application of data maximization and data linking strategies can certainly contribute to a more sophisticated profiling of online gamblers than an application of data minimization and data separation strategies can. The application of privacy invasive strategies has the potential to help differentiate between various forms of gambling behavior. By increasing the amount of data that is processed, and the purposes for which said data is processed, the chances of the occurrence of false-positives and false-negatives are reduced. That way, the reliability of a system based on the contextual observation of online gamblers' behavior and the determination of potential symptoms of risky gambling are increased. This reliability is ensured by the possibility to check the obtained data through the processing of information from several different sources. A diversity of sources is extremely relevant because a determination of problem gambling not only requires the analysis of information that refers to gambling, but also of information that provides insights into the private and professional lives of gamblers, as well as into their online and offline behavior. The merging of data and its additional analysis, increases the chances of making reliable assumption as to the existence (or non-existence) of problem gambling. The contextual observation of online gamblers enables data controllers to differentiate between various forms of gambling behavior and therefore spot the differences between gamblers such as our hypothetical characters – Alice, Bob and Carol.

Taking into account that such a large-scale processing of personal data could jeopardize personal privacy, the question arises as to whether there is an essential conflict between the right to the protection of personal data and the protection of gamblers from gambling-related harms. Considering the legal aspects of the conflict, the analysis of EU Data Protection Law, and primarily that of the relevant provisions of the GDPR in relation to the legal grounds for the lawful processing of data, has shown that the application of privacy-invasive strategies can still be legal. The analysis of the legal grounds for the legal processing of online gamblers' data has demonstrated that the legitimate interest ground is the most suitable ground for lawfully processing data. Namely, processing data for the purpose of applying a responsible gambling approach is not only in the interest of gamblers, but also in the interest of online gambling service providers. The interests of service providers become legitimate if they do not override the fundamental rights and freedoms of online gamblers. Therefore, the protection of online gamblers from gambling–related harms gives the data controller a legitimate interest for the implementation of privacy-invasive strategies, if the purpose for the implementation of such strategies is to strengthen responsible gambling.

Nevertheless, our privacy is that part of our autonomy which gives us control over our actions, which influences our decisions in relation to what we do and do not do, and which shapes the possibilities others have in terms of what they can and cannot do in relation to us. Therefore, the protection of privacy, or more precisely the protection of online gamblers' data, affects the type of relationship that exists between gamblers and online gambling service providers. This relationship, to a large extent, affects both the application of responsible gambling and commercial communication. In order to additionally influence the legitimacy of the interests of gambling operators to apply data maximization and data linking strategies, it is desirable to combine the application of these strategies with data minimization and data separation strategies. Their application can act as a safeguard for the protection of privacy when data maximization or data linking are resorted to, and can limit the processing of data

for commercial communication purposes. More precisely, these strategies (data minimization and data separation) can prevent the use of gamblers' personal data that was initially collected and processed for the purpose of responsible gambling, from being used for commercial communication purposes. That way, not only is the privacy of gamblers protected, but more importantly, the responsible gambling approach is strengthened further. At the same time, this approach does not deprive online gambling service providers of the possibility of advertising their services but, rather, makes them engage with commercial communication in a more responsible manner. Therefore, the probability that the interests of the data controller may override the fundamental rights and freedoms of data subject is reduced. As a consequence of such a condition, the chances that the interests of the data controller are legitimate are increased, as are those concerning whether the processing of online gamblers' data during the application of data maximization and data linking strategies are lawful.

All things considered, we can conclude that the processing of online gamblers' personal data for identification and commercial communication purposes affects the protection of online gamblers. Online gambling service providers are the most influential stakeholders when it comes to these processes. Online gambling service providers decide on an implementing strategy for data processing by taking into account at least two factors (probably the most important ones in their eyes) – their commercial interests and mandatory legislation. The large-scale processing of online gamblers' data creates more room for an effective implementation of responsible gambling measures. However, processing more data increases the chances of the occurrence of adverse effects of gambling-related commercial communication. Processing less data reduces the risks related to the provocation of problem gambling, but also limits our capacity to recognize gamblers at risk. In this respect privacy-preserving approaches do not contribute to responsible gambling. However, a balance between what may, at first glance, seem like contradictory approaches is possible. To achieve such a balance, the designs for privacy protective structures have to include the need to protect online gamblers and the implementation of a responsible gambling approach.

3 Recommendations

From what has been presented so far, a few relevant recommendations can be given to clarify the role the processing of online gamblers' data can play for the development of responsible gambling itself and the creation of a more relevant and effective legal framework.

Taking into consideration that one of the main principles of responsible gambling provides that standards, policies, legal acts and measures should, as much as possible, be based on scientific evidence, scientific research in the domains of gambling and data must be continued. Further research should provide additional findings as to the relevant indicators of problem gambling, as well as on mechanisms for their identification via the processing of online gamblers' data. It is also necessary to perform research in the domain of public policies. Although EU Member States are given exclusive control over how to regulate gambling activities at the national level, and in accordance with their national public policies, the extent to which such a regulatory approach has realized the declared goals of the national policies should be explored. The results of said research could open new avenues for a reconsideration of the current regulatory approach in the domain of online gambling in the EU, and possibly create space for advocating the creation of a supranational regulatory approach in relation to gambling activities and responsible gambling. Supranational regulation would facilitate the exchange of data,

helping realize some of the measures in the domain of responsible gambling, such as the checking of self-exclusion and time-out databases, and thus stipulate the application of a data linking strategy.

Taking into account the need to improve current regulatory frameworks, regulators must enhance the concept of responsible gambling. To strengthen the proactive approach, which is the most important asset of responsible gambling, relevant regulations, including national legislations, should strengthen regulatory measures for recognizing problem gambling, as well as clarify the proposed measures which should be undertaken after detecting the problem. By creating and strengthening the legal obligations in regard to the processing of data for the purpose of recognizing problem gambling, there would be less concerns in respect to the legality of the processing of online gamblers' data. The legality of the processing of online gamblers' data depends on EU Data Protection Law. Over the period during which this research has been conducted, EU Data Protection Law has been in a transitional phase (the GDPR has been adopted, but it is still not applicable, and the ePrivacy Regulation is in the process of being adopted). The author of this study considers that it would be beneficial if the European Data Protection Board, which was established by the GDPR and will become fully enforceable in May 2018, were to issue guidelines, recommendations or best practices in relation to the processing of online gamblers' data, both for responsible gambling purposes, and for the purpose of gambling-related commercial communication.

Finally, the gambling industry should establish practices for the processing of gamblers' personal data, in order to implement a responsible gambling approach. By codifying such practices, *de lege ferenda*, the processing of data for multiple purposes (e.g. for providing online gambling services and implementing responsible gambling measures) could be legitimized, which would influence the formation of both practice and custom regarding data processing in the context of online gambling and gambler protection. Therefore, data subjects' expectations regarding the processing of online gamblers' data would broaden to not only include processing for the purpose of the provision of a service, but also for ensuring a level of moderate gambling and in that way, preventing problem gambling.

Bibliography

Journal articles and working papers

Auer M and Griffiths M, 'The use of personalized behavioral feedback for online gamblers: an empirical study' (2015) 6 Frontiers in Psychology <https://doi.org/10.3389/fpsyg.2015.01406>

Binde P, 'Exploring the Impact of Gambling Advertising: An Interview Study of Problem Gamblers' (2009) 7 International Journal of Mental Health and Addiction 541

Bintliff B, 'Context and Legal Research' (2006) 99 Law Library Journal

Black R and Ramsay H, 'The ethics of gambling: guidelines for players and commercial providers' (2003) 3 International Gambling Studies 199

Blaszczynski A and Nower LA, 'A pathways model of problem and pathological gambling' (2002) 97 Addiction 487

Blaszczynski A, Ladouceur R and Shaffer H, 'A Science-Based Framework for Responsible Gambling: The Reno Model' (2004) 20 Journal of Gambling Studies 301

Blaszczynski A and others, 'Informed Choice and Gambling: Principles for Consumer Protection' (2008) 2 The Journal of Gambling Business and Economics 103

Blaszczynski A and others 'Responsible Gambling: General Principles and Minimal Requirements' (2011) 27 Journal of Gambling Studies 565

Braverman J and Shaffer H, 'How do gamblers start gambling: identifying behavioral markers for high-risk internet gambling' (2010) 22 European Journal of Public Health 273

Calado F, Alexandre J and Griffiths M, 'Prevalence of Adolescent Problem Gambling: A systematic Review of Recent Research' (2017) 33 Journal of Gambling Studies 397

Casabona S, 'The EU's online gambling regulatory approach and the crisis of legal modernity' (2014) EU Centre in Singapore Working Paper No.19, 3-4 <http://aei.pitt.edu/47671/1/WP19-Online-Gambling-Regulations.pdf>

Castrén S and others, 'At-risk and problem gambling among adolescents: a convenience sample of first-year junior high school students in Finland' (2015) 10 Substance Abuse Treatment Prevention and Policy <https://link.springer.com/article/10.1186/s13011-015-0003-8#citeas>

Cavoukian A, 'Privacy by design: The definitive workshop: A foreword by Ann Cavoukian' (2010) 3 Identity in the Information Society 247

Collins P and others, 'Responsible Gambling: Conceptual Considerations' (2015) 19 Gaming Law Review and Economics 594

Delfabbro P, 'Problem and Pathological Gambling: A Conceptual Review' (2013) 7 The Journal of gambling Business and Economics 35

Derevensky J and Gilbeau L, 'Adolescent gambling: Twenty-five years of research' (2015) 6 Canadian Journal of Addiction/Le Journal Canadien d'Addiction 4

Dodig D and Ricijaš N, 'Obilježja kockanja zagrebačkih adolescenata' (2011) 18 Ljetopis socijalnog rada 103

Dragicevic S, Tsogas G and Kudic A, 'Analysis of casino online gambling data in relation to behavioural risk markers for high-risk gambling and player protection' (2011) 11 International Gambling Studies 377

Dragicevic S and others, 'A Descriptive Analysis of Demographic and Behavioral Data from Internet Gamblers and Those Who Self-exclude from Online Gambling Platforms' (2015) 31 Journal of Gambling Studies 105

Etches M and Rigbye J, 'Introduction in Special Issue on Harm Minimization in Gambling' (2014) 8 The Journal of Gambling Business and Economics 1

Fayyad U, Piatetsky-Shapiro G, and Smyth P, 'From Data Mining to Knowledge Discovery in Databases' (1996) 17 AI Magazine 37

Fayyad U, Piatetsky-Shapiro G, and Smyth P, 'Knowledge Discovery and Data Mining: Towards a Unifying Framework' (AAAI, KDD-96 Proceedings, 1996) <https://www.aaai.org/Papers/KDD/1996/KDD96-014.pdf>

Forsström D, Hesser H and Carlbring P, 'Usage of a Responsible Gambling Tool: A Descriptive Analysis and Latent Class Analysis of User Behavior' (2016) 32 Journal of Gambling Studies 889

Friend K and Ladd G, 'Youth gambling advertising: A review of the lessons learned from tobacco control' (2009) 16 Drugs: education, prevention and policy 283

Gainsbury S and others, 'A digital revolution: Comparison of demographic profiles, attitudes and gambling behavior of Internet and non-Internet gamblers' (2012) 28 Computers in Human Behavior 1388

Graglia Lino, 'Government Promotion of Moral Issues: Gambling, Smoking and Advertising' (2008) 31 Harvard Journal of Law and Public Policy 69

Grant JE and Kim SW, 'Demographic and clinical features of 131 adult pathological gamblers' (2001) 62 Journal of Clinical Psychiatry 957

Griffiths M, 'Psychobiology of the Near-Miss in Fruit Machine Gambling' (1991) 25 The Journal of Psychology 347

Griffiths M, Wood R, and Parke J, 'Social Responsibility Tools in Online Gambling: A Survey of Attitudes and Behavior among Internet Gamblers' (2009) 12 CyberPsychology & Behavior 413

Griffiths M and Whitty M, 'Online behavioral tracking in Internet gambling research: Ethical and methodological issues' (2010) 3 International Journal of Internet Research Ethics 104

Griffiths M and Auer M, 'The irrelevancy of game-type in the acquisition, development, and maintenance of problem gambling' (2012) 3 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3547280/>

Griffiths M and Auer M, 'Should Voluntary "Self-Exclusion" by Gamblers be used as a Proxy Measure for Problem Gambling?' (2016) 2 Addiction Medicine &Therapy <http://medcraveonline.com/MOJAMT/MOJAMT-02-00019.php>

Grun L and McKeigue P, 'Prevalence of excessive gambling before and after introduction of a national lottery in the United Kingdom: another example of the single distribution theory' (2000) 95 Addiction 959

Gurses S, Troncoso C, and Diaz C, 'Engineering Privacy by Design' (K.U. Leuven/IBBT, ESAT/SCD-COSIC) <https://www.esat.kuleuven.be/cosic/publications/article-1542.pdf

Hardoon K and Derevensky J, 'Child and Adolescent Gambling Behavior: Current Knowledge' (2002) 7 Clin Child Psychol Psychiatry 263

Hing N and others, 'Do advertising and promotions for online gambling increase gambling consumption? An exploratory study' (2014) 14 International Gambling Studies 394

Holtgraves T, 'Text messaging, personality, and the social context' (2011) 54 Journal of Research in Personality 92

Hörnle J, 'Online Gambling in the European Union : A Tug of War without a Winner?' (2011) 30 Yearbook of European Law 255

Hospers J, 'Libertarianism and Legal Paternalism' (1980) IV The Journal of Libertarian Studies 255

Johansson A and others, 'Risk factors for problematic gambling: A critical literature review' (2009) 25 Journal of Gambling Studies 67

Koppell J, 'Pathologies of Accountability: ICANN and the Challenge of "Multiple Accountabilities Disorder"' (2005) 65 Public Administration Review 94

Krasnova H and others, 'Online social networks: Why we disclose?' (2010) 25 Journal of Information Technology 109

Kristiansen SG and Jensen SM, 'Prevalence and correlates of problematic gambling among Danish adolescents' (2014) 23 International Journal of Social Welfare 89

Lesieur H and Blume S, 'The South Oaks Gambling Screen (SOGS): A New Instrument for the Identification of Pathological Gamblers' (1987) 144 American Journal of Psychiatry 1184

Lokke Moerel and Corien Prins, 'On the Death of Purpose Limitation' <https://iapp.org/news/a/on-the-death-of-purpose-limitation/>

Mak V, 'Standards of Protection: In Search of the 'Average Consumer' of EU Law in the Proposal for a Consumer Rights Directive' (2010) TISCO Working Paper Series on Banking, Finance and Services 04/2010, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1626115>

Mak V 'The 'Average Consumer' of EU Law in Domestic Litigation: Examples from Consumer Credit and Investment Cases' (2011) TISCO Banking, Finance and Working Paper Series 003/2011, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1960603>

Manzin M and Biloslavo R, 'Online Gambling: Today's Possibilities and Tomorrow's Opportunities' (2008) 6 Managing global transitions: International Research Journal 95

Marllow J, 'The last gasp: Cigarette advertising on billboards in the 1990s' (2001) 25 Journal of Communication Inquiry 28

Matilainen R and Raento P, 'Learning to gamble in changing sociocultural contexts: experiences of Finnish casual gamblers' (2014) 14 International Gambling Studies 432

May-Chahal C and others, 'Gambling Harm and Crime Careers' (2017) 33 Journal of Gambling Studies 65

McCormack A and Griffiths M, 'A Scoping Study of the Structural and Situational Characteristics of Internet Gambling' (2013) 3 International Journal of Cyber Behavior Psychology and Learning 29

McKelvey S, 'The Growth in Marketing Alliances between US Professional Sport and Legalised Gambling Entities: Are We Putting Sport Consumers at Risk?' (2004) 7 Sport Management Review 193

McMullan J and Miller D, 'All in! The commercial advertising of off-shore gambling on television' (2008) 22 Journal of Gambling Issues 230

McMullan J and Kervin M, 'Selling Internet Gambling: Advertising, New Media and the Content of Poker Promotion' (2012) 10 International Journal of Mental Health and Addiction 622

Miers D, 'Regulation and the management of risk in commercial gambling in Great Britain' (2015) 15 International Gambling Studies 422

Monaghan S, Derevensky J and Sklar A, 'Impact of gambling advertisements and marketing on children and adolescents: Policy recommendations to minimise harm' (2008) 22 Journal of Gambling Issues 252

Mulgan R, '"Accountability": An Ever-Expanding Concept?' (2000) 78 Public Administration 555

Parke A and others, 'Responsible Marketing and Advertising in Gambling: A Critical Review' (2004) 8 The Journal of Gambling Business and Economics 21

Pine B and Gilmore J, 'Welcome to Experience Economy' (1998) 76 Harvard Business Review 97

Planzer S and Alemanno A, 'Lifestyle Risks: Conceptualizing an Emerging Category of Research' (2011) 4 European journal of risk regulation 337

Planzer S and Wardle H, 'The Comparative Effectiveness of Regulatory Approaches and the Impact of Advertising on Propensity for Problem Gambling' (Responsible Gambling Fund, London 2011) <https://ssrn.com/abstract=2045052>

Raylu N and Oei TP, 'Role of culture in gambling and problem gambling' (2004) 23 Clinical Psychology Review 1087

Reith G, 'Reflections on Responsibility' (2008) 22 Journal of Gambling Issues 149

Richards J and Curran C, 'Oracles on "advertising": Searching for a definition' (2002) 31 Journal of Advertising 63

Ricijas N, Dodig Hundric D and Huic A, 'Predictors of adverse gambling related consequences among adolescent boys' (2016) 67 Children and Youth Services Review 168

Sévigny S and others, 'Internet gambling: Misleading payout rates during the "demo" period' (2005) 21 Computers in Human Behavior 153

Shaffer H, LaBrie R and LaPlante D, 'Laying the Foundation for Quantifying Regional Exposure to Social Phenomena: Considering the Case of Legalized Gambling as a Public Health Toxin' (2004) 18 Psychology of Addictive Behaviors 40

Steinberg L, 'A Dual System Model of Adolescent Risk-Taking' (2010) 52 Developmental Psychobiology 216

Steinberg L, 'A social neuroscience perspective on adolescent risk taking' (2008) 28 Development Review 78

Steinberg L, 'Risk Taking in Adolescence: New Perspectives from Brain and Behavioral Science' (2007) 16 Current Directions in Psychological Science 55

Sztainert T, Kim HA and Wohl M, 'Knowledge Translation and Exchange in Gambling Research: A Beginners Guide*' (2014) 1* Responsible Gambling Review 64

Wachter S, Mittelstadt B and Floridi L, 'Why a Right to Explanation of Automated Decision-Making Does Not Exist in the General Data Protection Regulation' (2017) 7/2 International Data Privacy Law 76

Williams R and Volberg R, 'Best Practices in the Population Assessment of Problem Gambling' <https://www.uleth.ca/dspace/handle/10133/1259>

Wood R and Williams R, 'Problem Gambling on the Internet: Implications for Internet Gambling Policy in North America' (2007) 9 New Media & Society 520

Wood R, Shorter G and Griffiths M, 'Rating the Suitability of Responsible Gambling Features for Specific Game Types: A Resource for Optimizing Responsible Gambling Strategy' (2014) 25 International Journal of Mental Health Addiction 94

Youn S, Faber RJ and Shah DV, 'Restricting gambling and the third-person effect' (2000) 17 Psychology and Marketing 633

Zarsky T, '"Mine Your Own Business!": Making The Case for The Implications of The Data Mining of Personal Information in The Forum of Public Opinion' (2003) 5 Yale Journal of Law and Technology 8

Books and monographs

American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*: *Fifth edition* (American Psychiatric Association 2013)

Custers B, *The Power of Knowledge: Ethical, Legal, and Technological Aspects of Data Mining and Group Profiling in Epidemiology* (Wolf Legal Publishers (WLP) 2004)

Deryck Beyleveld and Roger Brownsword, *Consent in the Law* (Hart Publishing, 2007)

Dunkley J, *Gambling: a social and moral problem in France* (The Voltaire Foundation 1985)

Finnis J, *The Fundamentals of Ethics* (Oxford: Clarendon Press 1983)

Grinols E, *Gambling in America: Costs and Benefits* (Cambridge University Press 2004)

Helmut Koziol, *Osterreichisches Haftpflichtrecht* (Band I, 2. Auflage, Wien 1980)

Jakov Radišić, *Obligaciono pravo* (Nomos 2008)

Kosta E, *Consent in European Data Protection Law* (Martinus Nijhoff Publishers 2013)

Littler A, *Member States versus the European Union: The Regulation of Gambling* (Martinus Nijhoff Publishers 2011)

Meyer G, Hayer T, and Griffiths M (eds), *Problem Gambling in Europe: Challenges, Prevention, and Interventions* (Springer 2009)

Mill JS, *On Liberty* (Batoche Books 2001)

Munting R, *An Economic and Social History of Gambling in Britain and the USA* (Manchester University Press, 1996) ch 1, 16-18.

National Research Council, *Pathological Gambling: A Critical Review* (National Academies Press 1999)

Parkinson R, *Clausewitz: A Biography* (Cooper Square Press 2002)

Planzer S, *Empirical Views on European Gambling Law and Addiction* (Springer International Publishing, 2014)

Puškin A, *Pikova Dama – Belkinova i druge pripovetke* (Portal doo, 2016)

Roger Brownsword, *Rights, regulation and the technological evolution* (Oxford University Press 2008)

Roosendaal A, *Digital Persona and Profiles in Law: Protecting Individuals' Right in Online Context* (Wolf Legal Publishers)

Schwartz D, *Roll the Bones: The History of Gambling: Casino edition* (eBook, Gotham Books, 2013)

Contributions to edited volumes

Crane Y, 'What are the Cost and Benefiths of Gambling in the United Kingdom?' in Tom Coryn, Cyrille Fijnaut and Alan Littler (eds), *Economic Aspects of Gambling Regulation: EU and US Perspectives* (Martinus Nijhoff Publishers 2008)

Davis S and Horst M, 'Responsible Innovation in the US, UK and Denmark: Governance Landscapes' in Bert-Jaap Koops and others (eds), *Responsible Innovation 2: Concepts, Approaches, and Applications* (Springer International 2015)

Griffiths M, Hayer T and Mayer G, 'Problem Gambling: European Perspective' in Gerhard Mayer, Tobias Hayer and Mark Griffiths (eds), *Problem Gambling in Europe: Challenges, Perspective and Prevention* (Springer 2009)

Hildebrandt M, 'Defining Profiling: A New Type of Knowledge?' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizens: Cross-Disciplinary Perspective* (Springer 2008)

Hildebrandt M, 'Profiling and Identity of the European Citizen' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizen: Cross-Disciplinary Perspectives* (Springer 2008)

Holmgren R, '"Money on the Hoof". The Astragalus Bone – Religion, Gaming and Primitive Money' in Santillo Frizell B. (ed), *Pecus. Man and Animal in Antiguity. Proceedings of the Conference* (The Swedish Institute in Rome, 2002)

Jaquet-Chiffelle DO and others, 'Virtual Persons and Identities' in Kai Rannenberg, Denis Royer, Andre Deuker (eds), *The Future of Identity in the Information Society: Challenges and Opportunities* (Springer 2009)

Jarrett K, 'A Database of Intention?' in René König and Miriam Rasch (eds), *Society of the Query Reader: Reactions on Web Search* (Amsterdam: Institute of Network Cultures 2014) <http://networkcultures.org/query/wp-content/uploads/sites/4/2014/06/1.Kylie_Jarrett.pdf>

Kerstens P, 'Gambling Policy – The EU Dilemma' in Alan Littler and Cyrille Fijnaut (eds), *The Regulation of Gambling – European and National Perspectives* (Martinus Nijhoff Publishers 2007)

Koops BJ, 'The Concepts, Approaches, and Applications of Responsible Innovation, in Bert-Jaap Koops and others (eds), *Responsible Innovation 2: Concepts, Approaches, and Applications* (Springer International 2015)

Leenes R, 'Reply: Mind My Step?' in Mireille Hildebrandt and Serge Gutwirth (eds), *Profiling the European Citizen: Cross-Disciplinary Perspectives* (Springer 2008)

Lidskog R and Sundqvist G, 'Sociology of Risk' in Sabine Roeser and others (eds), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012)

Moller N, 'The Concept of Risk and Safety' in Sabine Roeser and others (eds), *Handbook of Risk Theory - Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012)

Nabeth T, 'Identity of Identity' in Kai Rannenberg, Denis Royer and Andre Deuker (eds), *The Future of Identity in the Information Society: Challenges and Opportunities* (Springer 2009)

Pagallo U, 'On the Principle of Privacy by Design and its Limits: Technology, Ethics and the Rule of Law' in: Serge Gutwirth and others (eds), *European Data Protection: In Good Health?* (Springer 2012)

Raab C, 'Difference and Categorization' in Ian Kerr, Valerie Steeves and Carole Lucock (eds) *Lessons from the Identity Trail: Anonymity, Privacy and Identity in a Networked Society* (Oxford University Press, 2009)

Reith G, 'The Culture of Gambling in Great Britain: Legislative and Social Change' In: Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhoff Publishers 2008)

Shavitt S and Zhang J, 'Advertising and Culture' in Charles Spielberger (ed), *Encyclopedia of Applied Psychology* (Volume 1, Elsevier Inc. 2004)

Shen J, Brdiczka O, and Liuand J, 'Understanding Email Writers: Personality Prediction from Email Messages' in Sandra Carberry and others (eds), *User Modeling, Adaptation, and Personalization* (Springer 2013)

Spapens T, 'Crime Problems related to Gambling: An Overview' in Toine Spapens, Alan Littler and Cyrille Fijnaut (eds), *Crime, Addiction and the Regulation of Gambling* (Martinus Nijhhoff Publishers 2008)

Van de Poel I and Nihle´n Fahlquist J, 'Risk and Responsibility' in Sabine Roeser and others (eds), *Handbook of Risk Theory: Epistemology, Decision Theory, Ethics, and Social Implications of Risk* (Springer 2012)

Van Otterlo M, 'A machine learning view on profiling' in Mireille Hildebrandt and Katja de Vries (eds), *Privacy, Due Process and the Computational Turn: The philosophy of law meets the philosophy of technology* (Routledge 2013)

Vargas P and Yoon S, 'Advertising Psychology' in Charles Spielberger (ed), *Encyclopedia of Applied Psychology* (Volume 1, Elsevier Inc. 2004)

Veenstra T, 'State Licensed Lotteries and Totto Companies in the Legal and Political Debate in the European Union' in Alan Littler and Cyrille Fijnaut (eds), *The Regulation of Gambling – European and National Perspective* (Martinus Nijhoff Publishers 2007)

Verbeke A, 'Gambling Regulation in Europe: Moving Beyond Ambiguity and Hypocrisy' in Alan Littler and others (eds), *In the Shadow of Luxemburg: EU and National developments in the Regulation of Gambling* (Martinus Nijhoff Publishers 2011)

Zarsky T, 'Online Privacy, Tailoring, and Persuasion' in Katherine Strandburg and Daniela Stan Raicu (eds), *Privacy and Technologies of Identity* (Springer 2006)

Reports, studies and surveys

Amey B, 'People's participation in and attitudes to gaming, 1985-2000: Final results of the 2000 survey' (New Zealand: Department of Internal Affairs, Wellington 2001)

Binde P, 'Gambling advertising: A critical research review' (The Responsible Gambling Trust, London 2014)

Department for Children, Schools and Families, and the Department for Culture, Media and Sport, United Kingdom, 'Safer Children in a Digital World: The Report of the Byron Review' (Byron Review – Children and New Technologies)
<http://webarchive.nationalarchives.gov.uk/20101021152907/http://publications.education.gov.uk/eor>deringdownload/dcsf-00334-2008.pdf ,

European Gaming and Betting Association (EGBA), 'Market Reality' <http://www.egba.eu/facts-and-figures/market-reality/>

Ferris J and Wynne H, 'The Canadian Problem Gambling Index: Final Report' (Submitted to the Canadian Consortium for Gambling Research February 2001).

Frost & Sulivan, 'World Online Gambling Markets' (1999) <https://store.frost.com/world-online-gambling-markets.html>

Gambling Compliance, 'European Regulated Online Markets: Data Report' (2012)

Griffiths M, 'Problem Gambling in Europe: An Overview' (Nottingham Trent University, April 2009)

Hildebrandt M, Koops BJ and Vries K 'D7.14b: Where Idem-Identity meets Ipse-Identity. Conceptual Explorations' in WP, *FIDIS The Future of Identity in the Information Society* (19 December 2008) <http://www.fidis.net/fileadmin/fidis/deliverables/fidis-WP7-del7.14a-idem_meets_ipse_conceptual_explorations.pdf>

Holloway D, Green L and Livingstone S, 'Zero to eight: Young children and their Internet use' (The London School of Economics and Political Science, August 2013).

Korn D, Hurson T and Reynolds J, 'Final report: Commercial gambling advertising: Possible impact on youth knowledge. Attitudes, Beliefs and Behavioral intentions' (Ontario Problem Gambling Research Centre 2005)

Nash V and others, 'Effective age verification techniques: Lessons to be learnt from the online gambling industry: Final Report: December 2012 – December 2013' (University of Oxford) <www.oii.ox.ac.uk/publications/Effective-Age-Verification-Techniques.pdf>

Neal P, Delfabbro P and O'Neil M, 'Problem Gambling and Harm: Towards a National Definition' (Commissioned for The Ministerial Council on Gambling, prepared by The SA Centre for Economic Studies with the Dept. of Psychology, University of Adelaide. Published on behalf of Gambling Research Australia, November 2005)

Pfitzmann A and Hansen M, 'A terminology for talking about privacy by data minimization: Anonymity, Unlinkability, Undetectability, Unobservability, Pseudonymity, and Identity Management' (Version v0.34, August 2010) <https://dud.inf.tu-dresden.de/literatur/Anon_Terminology_v0.34.pdf>

Swiss Institute of Comparative Law, 'Study of Gambling in the Internal Market of the European Union: Final Report' (2006)

United States Government Accountability Office, 'Assessing the Reliability of Computer-Processed Data: Section 2: Understanding Data Reliability' (External Version I, July 2009) <http://www.gao.gov/assets/80/77213.pdf>

Wardle H and others, 'British Gambling Prevalence Survey 2010' (National Centre for Social Research 2011)

Papers and presentations from conferences and roundtables

BetBuddy and City University London, 'Responsible Gambling Algorithms' (Roundtable on Responsible Gambling Algorithms, City University London, 13 July 2016) <http://www.bet-buddy.com/media/1190/responsible-gambling-algorithms-roundtable-1-august-2016-final.pdf>

Blaszczynski A, Ladouceur R and Shaffer H 'New Horizons in 2014: The Reno Model: 10 Years Later' <https://www.youtube.com/watch?v=mjJEGx66_rA&feature=em-share_video_user>

Colesky M, Hoepman JH and Hillen C, 'A Critical Analysis of Privacy Design Strategies' (Security and Privacy Workshops (SPW) 2016) <https://www.cs.ru.nl/J.H.Hoepman/publications/iwpe-privacy-strategies.pdf>

Hoepman JH, 'Privacy Design Strategies' (The Privacy Law Scholars Conference (PLSC) 2013) <https://arxiv.org/abs/1210.6621v2>

Nowson S, 'Identifying more bloggers: Towards large scale personality classification of personal weblogs' (Proceedings of the International Conference on Weblogs and Social, 2007)

Pavlovic D, 'Online gambling, addiction and lawful consent' (10th European Conference on Gambling Studies and Policy Issues, EASG, Helsinki, September 2014).

Regulatory briefing, 11th European Conference on Gambling Studies and Policy Issues (Lisbon, September 2016)

Regulatory briefing, 9th Eastern European Gaming Summit (Sofia, November 2016)

Williams J, Australian Gaming Council, 'The Reno Model: From the Theory to Practice' (Presentation at 6th European Conference on Gambling Studies and Policy Issues, Malmo, June 2005)

Privacy policies and Terms and Conditions (T&Cs)

Bet at Home, 'General Terms and Conditions' <https://www.bet-at-home.com/en/terms#l>

Bet at Home, 'Privacy Policy' <https://www.bet-at-home.com/en/privacypolicy>

Bet at Home, 'Privacy Policy' <https://www.bet-at-home.com/en/privacypolicy>

BetClic, 'Privacy Policy' <https://en.betclic.com/content/privacypolicy>

BetClick, 'General Terms and Conditions' <https://en.betclic.com/content/tandc>

Betfair, 'Privacy Policy' <http://www.betfair.com/aboutUs/Privacy.and.Data.Protection/#Privacy2>

Bwin, 'Privacy Policy' <https://help.bwin.com/pt/general-information/security/privacy-policy>

Coral, 'Privacy Policy' <http://coral-eng.custhelp.com/app/answers/detail/a_id/2132/~/privacy-policy>

Ladbrokes, 'Privacy Policy' <http://helpcentre.ladbrokes.com/app/answers/detail/a_id/272/~/privacy-policy>

Paddy Power, 'Privacy Policy' <https://support.paddypower.com/app/answers/detail/a_id/9/~/privacy-%26-cookie-policy>

Stan James, Privacy Policy' <https://www.stanjames.com/UK/802/help#action=privacy-policy&tab=privacypolicy&subtab=privacypolicy>

Press Articles and Press Releases

Court of Justice of the European Union, 'Press Release No 75/10' (July 2010)

Court of Justice of the European Union, 'Press Release No 78/10' (September 2010)

Davy L, 'The Budding Relationship Between Football Sponsorship and Gambling' (Calvin Ayre, August 2013) <http://calvinayre.com/2013/08/29/sports/football-sponsorship-and-gambling-relationship/>

DLA Piper, 'Germany: Administrative court orders gambling authority to issue sports betting license' <http://blogs.dlapiper.com/mediaandsport/2016/04/germany-administrative-court-orders-gambling-authority-to-issue-sports-betting-license/>

Jeffries A, 'Online poker industry still reeling two years after federal 'Black Friday' crackdown' (The Verge, April 2013) <https://www.theverge.com/2013/4/15/4226358/poker-black-friday-two-year-anniversary>

Poker News, 'Ladbrokes and Gala Coral Complete £2.3 Billion Merger' <https://www.pokernews.com/news/2016/11/ladbrokes-and-gala-coral-complete-2-billion-merger-26250.htm>

The Guardian, 'Paddy Power and Betfair merger agreed' <https://www.theguardian.com/business/2015/sep/08/paddy-power-and-betfair-merger-agreed>

Case Law

Case Law of the Court of Justice of the European Union

C 124/97 *Markku Juhani Läärä, Cotswold Microsystems Ltd and Oy Transatlantic Software Ltd v Kihlakunnansyyttäjä (Jyväskylä) and Suomen valtio (Finnish State)* [1999] ECR I-06067

C 203/08 *Sporting Exchange Ltd v Minister van Justitie* [2010] ECR I-04695

C 243/01 *Criminal proceedings against Piergiorgio Gambelli and Others* [2003] ECR I-13031

C 258/08 *Ladbrokes Betting & Gaming Ltd and Ladbrokes International Ltd v Stichting de Nationale Sporttotalisator* [2010] ECR I-04757

C 275/92 *Her Majesty's Customs and Excise v Gerhart Schindler and Jörg Schindler* [1994] ECR I-01039

C 33/74 *Johannes Henricus Maria van Binsbergen v Bestuur van de Bedrijfsvereniging voor de Metaalnijverheid* [1974] ECR 01299

C 36/02 *Omega Spielhallen und Automatenaufstel lungs-GmbH Vs. Oberbürgermeisterin der Bundesstadt Bonn* [2004] ECR I-9609

C 42/02 *Diana Elisabeth Lindman* [2003] ECR I-13519

C 42/07 *Liga Portuguesa de Futebol Profissional and Bwin International Ltd v Departamento de Jogos da Santa Casa da Misericórdia de Lisboa* [2009] ECR I-07633

C 55/94 *Reinhard Gebhard v Consiglio dell'Ordine degli Avvocati e Procuratori di Milano* [1995] ECR I-04165; C-76/90 *Manfred Säger v Dennemeyer & Co. Ltd.* [1991] ECR I-04221

C 6/01 *Associação Nacional de Operadores de Máquinas Recreativas (Anomar) and Others v Estado português* [2003] ECR I-08621

C 64/08 *Criminal proceedings against Ernst Engelmann* [2010] ECR I-08219

C 67/98 *Questore di Verona v Diego Zenatti* [1999] ECR I-07289

Joined cases C 316/07, 358/07, 359/07, 360/07, 409/07 and 410/07 *Markus Stoß, Avalon Service-Online-Dienste GmbH and Olaf Amadeus Wilhelm Happel v tegen Wetteraukreis and Kulpa Automatenservice Asperg GmbH, SOBO Sport & Entertainment GmbH and Andreas Kunert v Land Baden-Württemberg* [2007] ECR I-08069

Joined cases C 447/08 and 448/08 *Criminal proceedings against Otto Sjöberg and Anders Gerdin* [2010] ECR I-06921

Joined cases C-338/04, 359/04 and 360/04 *Criminal proceedings against Massimiliano Placanica, Christian Palazzese and Angelo Sorricchio* [2007] ECR I-01891

United States

United States of America -v- Isai Scheinberg and others (2011).

United Kingdom

Calvert v. William Hill Credit Ltd [2008] EWCA Civ 1427

Legislation, policy documents and expert advice

International Law

The Council of Europe Convention No. 108 for the Protection of Individuals with regard to Automatic Processing of Personal Data (adopted 28 January 1981, entered into force 1 October 1985)

United Nations, The Universal Declaration of Human Rights (10 December 1948)

EU Law

Treaties

Consolidated version of the Treaty on the Functioning of the European Union - PROTOCOLS - Protocol (No 2) on the application of the principles of subsidiarity and proportionality [2008] OJ C115/26

Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union [2012] OJ S326/1 (TEU, TFEU)

The European Parliament, the Council and the Commission Charter of Fundamental Rights of The European Union [2012] OJ C326/391

Regulations

The European Parliament and of The Council Regulation 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) [2016] OJ L119/1 (GDPR), art 5(1)(c).

Directives

Directive 2011/83/EU of the European Parliament and of the Council of 25 October 2011 on consumer rights, amending Council Directive 93/13/EEC and Directive 1999/44/EC of the European Parliament and of the Council and repealing Council Directive 85/577/EEC and Directive 97/7/EC of the European Parliament and of the Council Text with EEA relevance [2011] OJ L304/64

Directive of the European Parliament and of the Council 2002/58/EC of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector [2002] OJ L 201/37

The European Parliament and the Council Directive 2000/31/EC of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market [2000] OJ L178/1 (E-commerce Directive).

The European Parliament and the Council Directive 2006/123/EC of 12 December 2006 on services in the internal market [2006] OJ L376/36

The European Parliament and the Council Directive 2010/13/EU of 10 March 2010 on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services [2010] OJ L95/1

The European Parliament and the Council Directive 95/46/EC of 24 October 1995 on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data [1995] OJ L281/31 (Directive 95/46)

Documents of the European Commission and European Parliament

Communication from The Commission to The European Parliament, The Council, The Economic and Social Committee and The Committee of The Regions Towards a Comprehensive European Framework for Online Gambling, COM/2012/0596 final

European Commission, 'Information Providers Guide: The EU Internet Handbook' (21 September 2016) <http://ec.europa.eu/ipg/basics/legal/cookies/index_en.htm>

European Commission, 'Summaries of important judgments: Criminal proceedings against Massimiliano Placanica (C-338/04), Christian Palazzese (C-359/04) and Angelo Sorricchio (C-360/04), judgment of 6 March 2007' (May 2007) <http://ec.europa.eu/dgs/legal_service/arrets/04c338_en.pdf>

European Parliament, Resolution of 10 September 2013 on Online Gambling in The Internal Market, (2012/2322(INI)), 10 September 2013.

The European Commission Recommendation 2014/478/EU of 14 July 2014 on Principles for the Protection of Consumers and Players of Online Gambling Services and for the Prevention of Minors from Gambling Online [2014] OJ L214/38

The European Commission, 'GROWTH: Internal Market, Industry, Entrepreneurship and SMEs: Gambling' <http://ec.europa.eu/growth/sectors/gambling/> accessed 18 December 2017.

The European Commission, GREEN PAPER on on-Line Gambling in the Internal Market, COM/2011/0128 final, 24 March 2011 (The Green Paper)

The European Commission, Staff Working Document, Online gambling in the Internal Market Accompanying the document Communication from the Commission to the European Parliament, The Council, The Economic and Social Committee and The Committee of The Regions Towards a Comprehensive Framework for Online Gambling, SWD/2012/0345 final

Article 29 Data Protection Working Party

Article 29 Data Protection Working Party, 'Opinion 2/2010 on Online Behavioral Advertising', 00909/10/EN WP171, 22 June 2010

Article 29 Data Protection Working Party, 'Opinion 1/2010 on the concepts of 'controller' and 'processor', 00264/10/EN WP 169, 16 February 2010

Article 29 Data Protection Working Party, 'Working Document 01/2012 on epSOS', 00145/12/EN WP189, January 2012

Article 29 Data Protection Working Party, 'Opinion 03/2013 on purpose limitation' 00569/13/EN, WP 203, 2 April 2013

Article 29 Data Protection Working Party, 'Opinion 15/2011 on the definition of consent' 01197/11/EN WP187, July 2013

Article 29 Data Protection Working Party, 'Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC', 844/14/EN WP 217, 9 April 2014

Article 29 Data Protection Working Party, 'Opinion 06/2014 on the notion of legitimate interests of the data controller under Article 7 of Directive 95/46/EC', 844/14/EN WP 217, 9 April 2014

US Law

Security and Accountability For Every Port Act, 46 U.S.C. § 701 (2006)

Unlawful Internet Gambling Enforcement Act, 31 U.S.C. §53 (2006)

Miscellaneous

(OLD Online) <https://www.oxfordlearnersdictionaries.com/definition/english/elusiveness?q=elusiveness>

'digital marketing' (*Business Dictionary*) <http://www.businessdictionary.com/definition/digital-marketing.html>

'strategy, n' (*Merriam-Webster*, December 2017) <https://www.merriam-webster.com/dictionary/strategy>

'The Etymology of Gambling Terms: From Casino to Roulette' <http://www.rhapsodoioralgreekandlatin.org/the-etymology-of-gambling-terms>

AskGamblers, 'Cashback Bonus' <http://www.askgamblers.com/bonus/cashback>

Be Gambler Aware, <https://www.begambleaware.org/>

BeGambleAware, 'What is self-exclusion?' <http://www.gambleaware.co.uk/confidential-support-and-advice/self-exclusion>

Betffair, 'What is in-play betting?' <https://betting.betfair.com/what-is-in-play-betting.html>

Carboni G, 'History and Trends of Italian Remote Gambling – Part 1/3' (European Gambling Lawyers and Advisors, June 2014) <http://www.egla.eu/w/taxation/history-and-trends-of-italian-remote-gambling-part-12/

Carl von Clausewitz, *On War,* Book 3, Chapter 1 Strategy <https://www.clausewitz.com/readings/OnWar1873/BK3ch01.html#a>

Citoco, Cite de l'Economie et da la Monnaie, 'The First European Banknote' <https://www.citeco.fr/en/first-european-banknote>

Directorate General for the Regulation of Gambling, 'General Register of Gaming Access Bans (RGIAJ)' <http://www.ordenacionjuego.es/en/rgiaj>

Duhaime's Law Dictionary <http://www.duhaime.org/LegalDictionary/B/Bonuspaterfamilias.aspx>

Eliot A. Cohen, 'Strategy', *Encyclopedia Britannica* <https://www.britannica.com/topic/strategy-military>

European Commission web page, 'e-Identification' <https://ec.europa.eu/digital-single-market/en/e-identification>

European Commission web page, 'Sector: Gambling' <http://ec.europa.eu/growth/sectors/gambling_en>

European Interactive Digital Advertising Alliance (EDAA), 'Your Online Choice – a Guide to Online Behavioral Marketing' <http://www.youronlinechoices.com/uk/about-behavioural-advertising>

Facebook, 'What names are allowed on Facebook' <https://www.facebook.com/help/112146705538576>

Gambling Help Online, <http://www.gamblinghelponline.org.au/take-a-step-forward/self-assessment/problem-gambling-severity-index-pgsi>

GameCare, <https://gamtest.se/v3/gamcare>

Google Cloud Platform, 'Cloud Natural Language API' <https://cloud.google.com/natural-language/>

History of Microgaming, <https://www.gamblingsites.com/history/microgaming/>

Information Commissioner's Office, 'Conducting Privacy Impact Assessment: Code of Practice' (Version 1.0. 2014) < https://ico.org.uk/media/for-organisations/documents/1595/pia-code-of-practice.pdf>

International Organization for Standardization, 'ISO/IEC 29100: Information technology – Security techniques – Privacy framework' (edition 1, 2011-12)

Investopedia, 'Redlining' <http://www.investopedia.com/terms/r/redlining.asp>

IRMA project, <https://privacybydesign.foundation/irma/>

Manchester localized gambling risk index, <http://mapcase.geofutures.com/gamblingriskindex/manchester/>

NemID, 'About NemID'<https://www.nemid.nu/dk-en/about_nemid/>

Organisation of Economic Co-Operation and Development, 'OECD guidelines on the protection of privacy and transborder flows of personal data' (1980)

Spillemyndigheden, 'Rofus – Exclusion from Gambling' <https://spillemyndigheden.dk/en/rofus-exclusion-gambling>

The European Parliament, 'The principle of subsidiarity' (2017) <http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.2.2.pdf> accessed 18 December 2017

The Federal Association of Child and Youth Protection – BAJ, 'Protection of minors' <http://www.protection-of-minors.eu/en/info.html>

The Federation of Finish Financial Services 'Finance Finland' <http://www.finanssiala.fi/en>

The Federation of Finnish Financial Services, 'TUPAS identification system, Identification principles' (version2.0c, December 2013)
<http://www.finanssiala.fi/maksujenvalitys/dokumentit/TUPAS_identification_principles_v20c.pdf>

Todd M, Interview with Prof. Mark Griffiths (Sage Publishing, February 2016)
<http://connection.sagepub.com/blog/sage-connection/2016/02/11/methods-in-action-behavioral-tracking/>

Wardle H and others, 'Exploring area-based vulnerability to gambling-related harm: Developing the gambling-related harm risk index' (Local Government Association, City of Westminster, Manchester City Council, February 2016)

Westminster localized gambling risk index, <http://mapcase.geofutures.com/gamblingriskindex/westminster/>

WHO <http://www.who.int/classifications/icd/revision/en/>

WHO, beta version of ICD-11 <https://icd.who.int/dev11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1939508018>

WHO, ICD-10 Version:2016 <http://apps.who.int/classifications/icd10/browse/2016/en#/F63.0>

Wikiinvest, 'Cryptologic' <http://www.wikinvest.com/stock/Cryptologic_(CRYP)>