A *BRAVE NEW WORLD* OF AMBIENT INTELLIGENCE IN THE CASINOS OF MACAU: REALITY OR FICTION?

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Brief description of the issue of "intelligent ambient" in the casinos of Special Administrative Region of Macau (SARM)

The concept of *intelligent ambient* or IAm[1] (from the English *Ambient Intelligence*)[2] represents a digital and pervasive ambient created by the convergence of the technologies of radio transmission and broadcasting (as an identification by radiofrequency (RFID)[3], agents of software, sensor networks, and processing of data by personal mobile devices. The convergence of technologies in cyberspace facilitates the integration and the interaction of the devices named as "intelligent"[4]. This new reality in the casinos of the Special Administrative Region of Macau portrays an ambient (intelligent) in which the players are surrounded by intuitive interfaces embedded in every corner (even the most inhospitable ones) of the casino[5].

Consequently, as a non-derogable rule, casinos have a remarkable paraphernalia of objects (subsumed therefore to the taxonomy digital ambient) embodying one capacity of analysis of context and of adjustment to the needs of the gamblers of the casinos of Macau[6,7].

In fact, those intuitive interfaces capture, collect, and store, in real time, the casino

1 In this sense, HUGO LUZ DOS SANTOS, "The gaming in the casinos of the Special Administrative Region of Macau and the Surveillance: is someone always watching? (Some notes regarding privacy)", still in preparation, and that we will follow very closely from here.

2 About the issue of the *intelligent ambient*, in the epistemological framework of *online dispute resolution*, O. RABINOVICH-EINY & E. KATSCH, "Lessons from Online Dispute Resolution for Dispute Systems Design", in: *Online Dispute Resolution Theory and Practice*, Hague, Netherlands, Eleven International Publishing, (2013), pp. 39-40; M. FRIEDEWALD, E. VILDJIOUANE, Y. PUNIE, D. WRIGHT, "The Brave New World of Ambient Intelligence: An Analysis of Scenarios regarding Security, Security and Privacy Issues", in: *Security in Persuasive Computing. Proceedings of the Third International Conference*, New York, Springer, (2006), p. 3934; in the British doctrine, A. THIESSEN/E. LOODER, "The Role of Artificial Intelligence in Online Dispute Resolution", in: *Workshop on Online Dispute Resolution at the International Conference on Artificial Intelligence and Law*, Edinburgh, United Kingdom, (2003), pp. 4-5.

3 In this sense, ALIAKSANDRA YELSHYNA/FRANCISCO ANDRADE/PAULO NOVAIS, "Um ambiente inteligente de resolução de litígios – Repercussões jurídicas na privacidade e protecção de dados", in: *Scientia Ivridica (SI), Revista de Direito Comparado Português e Brasileiro*, Janeiro/Abril 2015 – Tomo LXIV – Número 337, Braga, (2015), pp. 113 and following, which we will very closely follow.

4 E. ARTS/ R. ROOVERS, "Embedded System Design Issues in Ambient Intelligence", in: *Ambient Intelligence: Impact on Embedded System Design*, Kluwer Academic Publishers, Norwell, (2003), pp. 11-29.

5 M. FRIEDWALD, E. VILDJIOUNAITE/Y.PUNIE & D. WRIGHT, "The Brave New World of Ambient Intelligence: An Analysis of Scenarios Regarding Privacy, Identity and Security Issues", in: *Security in Pervasive Computing. Proceedings of the Third International Conference,* New York, Springer, (2006), p. 119.

6 Y. PUNIE, "The Future of Ambient Intelligence in Europe: The Need for More Everyday ife", in: *Communications and Strategies*, Sevilha, (2005), p. 142.

7 P.NOVAIS/R.COSTA/D-CARNEIRO/J.NEVES, "Inter-Organization Cooperation for Ambient Assisted Living", in: *Journal*

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patron's personal data, and ultimately intend to shape and standardize their real necessities, habits, and attitudes, thus allowing to maximize and optimize the intelligent ambient in which those interfaces were primarily created.

With that goal in mind, the systems of IAm of the casinos of the Special Administrative Region of Macau have to collect and process large amounts of personal data and define the players' profiles. These personal data are frequently collected and processed without any notification of the casino patrons[8], through devices and techniques which perform a silent and continuous tracking of players' personal habits[9], profaning, at least in theory, one of its key requirements - the existence of consent of the holder of the personal data[10,11].

Thus, in the intelligent ambient of the casinos there is a certain working density in the systems of surveillance, that claim the risk of undue and unsolicited processing of personal data[12,13].

In the cases of use of personal data for spurious purposes mentioned above, that unreachable core weakens itself and violates the *thematic privacy* and *spatial privacy* of the casino patrons.

Closely following the lesson of the German Constitutional Court (Bundesverfassungsgericht – BVerfGE), the thematic privacy that is precisely reappointed the same universe of factual constellations covered by privacy in a material sense, refers to those data or realities that the holder of the fundamental right intend to subtract to the curiosity and to the public discussions[14,15], such as sexuality, deviant behaviors and diseases[16].

On the other hand, the sphere of privacy in a spatial sense belongs to an area of entrenchment of the individual that ensures the possibility of meeting and being with himself and of evasion[17], which normally happens inside the hotel rooms of casino patrons[18].

This means there is an unreachable core of privacy that emerges from personal data of the casino patrons that involves – and identifies with – the universe of things, facts, events, experiences, emotions, and places, meaning that they are a core of irreducible

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8 Regarding the *data mining*, the doctrine, with good reasons, refers that *"a persistent and generalized data capture, and second, the treatment and intersection in real tim*e little relevant data can reveal sensitive information allowing the development of the knowledge of the person concerned"; in this sense, DANIEL SOLOVE, "Introduction: Privacy self-management and the consent dilemma", in: *Harvard Law Review,* Volume 126, (2012), pp. 1888-1889.

9 We will not address in this article, the (candent) of the issue *data mining* which, in the words of authorized doctrine, *"data mining allows inferences not only about the direct subject of surveillance, but about other people with whom they live, work and communicate"*; In this sense, JACK M. BALKIN, "The Constitution in the National Surveillance State", in: *Yale Law School Legal Scholarship Repository*, Faculty Scholarship Series, Paper 225, (2008), p. 13; approximately, DANIEL SOLOVE, *The Digital Person*: *Technology and Privacy in the Information Age*, New York University Press, New York, (2004), pp. 42-49.

10 ALIAKSANDRA YELSHYNA/FRANCISCO ANDRADE/PAULO NOVAIS, "Um ambiente inteligente de resolução de litígios – Repercussões jurídicas na privacidade e protecção de dados", cit., p. 114.

11 According to the Portuguese doctrine, "*It can only be considered as informed consent that who is given, having the holder become aware of the purpose and the exact extent of his/her consent"*; in this sense, monografically, CATARINA SARMENTO E CASTRO, *Direito da Informática, Privacidade e Dados Pessoais*, Almedina, Coimbra, (2005), p. 206.

12 ALIAKSANDRA YELSHYNA/FRANCISCO ANDRADE/PAULO NOVAIS, "Um ambiente inteligente de resolução de litígios – Repercussões jurídicas na privacidade e protecção de dados", cit., p. 114.

13 As it is in this regard well stated by qualified doctrine, *"Specialized software tracks chips and specific cards. Pit bosses know which tables are turning a profit and which ones are losing. Moreover, casino patrons can be tracked via players"*; in this sense, JESSICA D. GABEL, "CSI Las Vegas: Privacy, Policing, and Profiteering in Casino Structured Intelligence", in: *UNLV Gaming Law Journal*, Volume 3, Spring 2012, Nevada, Reno, (2012), p. 41.

14 In this sense, Ruling of the German Constitutional Court (*Bundesverfassungsgerricht – BVerfGE*), in: *Neue Juristichen Wochenschrift (NJW),* (2008), p. 1794.

15 In the Portuguese doctrine, MANUEL DA COSTA ANDRADE, "Domicílio, intimidade e Constituição", in: *Revista de Legislação e Jurisprudência (RLJ*), Ano 138.º, N.º 3953, Novembro-Dezembro de 2008, Coimbra Editora, Coimbra, (2008), p. 110.

16 In this sense, Ruling of the German Constitutional Court (Bundesverfassungsgerricht – BVerfGE), in: *Neue Juristichen Wochenschrift (NJW)*, (2000), p. 1022.

17 See, in the German doctrine, about the contraposition of the *sphere of the thematic privacy/sphere of the spatial privacy*, ENGELS/JÜRGENS, in: *Neue Juristichen Wochenschrift (NJW)*, (2007), p. 2517.

18 In this sense, Ruling of the German Constitutional Court (*Bundesverfassungsgerricht – BVerfGE*), in: *Neue Juristichen Wochenschrift (NJW)*, (2008), p. 1794.

subjectivity, individuality and personhood, and thus, logically, the casino patron legitimately intends to keep to himself and for a small number of others[19]. Therefore, being that a space of guardianship of privacy converted into a place of fulfillment of private life[20,21], it is understood that the use of personal data of casino patrons for strange purposes (e.g., blackmail) to the services trade and of functionalities given by the casinos of Special Administrative Region of Macau has, as a result, a big profligate (grosser Lauschangriff)[22,23,24]. Furthermore it embodies a derogation from the principle of the dignity of the human person and of the right to the free development of personality[25] (art.º 30.º, n.º 1, of the Basic Law of Macau).

The proportionality (*Verhältnismäßigkeitsgrundsatz*) as a way of legitimation of the secondary use of big data, for law enforcement purposes – the *Law of the Weighing ea Weight formula*

As previously discussed[26], the principle of proportionality that in recent decades achieved remarkable recognition in theory and practice of the control of constitutionality[27,28] consists of three subprinciples: adequacy, necessity, and the proportionality in a strict sense. These three subprinciples express the idea of optimization[29,30.]

In fact, the principles require optimization in relation to what is factual and legally possible[31]. The subprinciples of adequacy and necessity refer to the optimization concerning the existent factual possibilities.This case suits perfectly in the sphere of factual availability of the casinos, the information shared with other casinos and with law enforcement agencies, for purposes of prevention and repression of criminality related to the fraudulent game.

The subprinciple of proportionality in a strict sense refers to the optimization

19 MANUEL DA COSTA ANDRADE, "Domicílio, intimidade e Constituição", *cit.*, p. 110.

20 In Ruling of the German Constitutional Court (*BGHSt*), 50, 206, JR, (2006), p.216. In the same sense, *BGHSt* 42, 372, in: *Neue Juristichen Wochenschrift (NJW)*, (1997), p. 1018.

21 Thus, in the case *Malone v.United Kingdom* referred that the *access and use of data concerning traffic of communications* form subject which is covered by the *protection scope* of no. 1 of ART 8 of the ECHR (*Ruling of 02/08/1984, complaint no. 8691/79*). The Court of Justice of *European Union (CJEU)* referred that this right *«is closely connected with the right to respect of private life» (Ruling of 09/11/2010, Volkerund Markus Schecke, process no. C-92/09 e C-93/09). On the other hand he clarified that the protection traffic data of communications is covered by the scope of protection of this fundamental right thus Ruling of 08/04/2014, Digital Rights Ireland Ltd., processes no.* C-293/12 e C-594/12, that abrogated Directive 2004/26/CE, by violation of the articles 7 and 8 of the Letter of Fundamental Rights); in this sense Ruling of Constitutional Court of Portugal, no. 403/2015, which we even literally very closely follow , available in www.dgsi.pt.

22 In this sense in the German doctrine, BÖCKENFORDE, in: *Juristichen Zeitung (JZ)*, (2008), p. 926.

23 In this sense, the *leading case* of Ruling of German Constitutional Court (*Bundesverfassungsgerricht – BVerfGE*) 109, 279 = in: *Neue Juristichen Wochenschrift (NJW)*, (2004), pp. 1000-1002.

24 The notion, jurisprudentially shaped, of the *grosser Lauschangriff* was set again in the Ruling of German Constitutional Court (*Bundesverfassungsgerricht – BVerfGE*), known as *Carolina II*, in: *Neue Juristichen Wochenschrift (NJW)*, (2008), pp. 1793 and ss; about this seminal jurisprudential decision, see, in the german doctrine, S. ENGELS/U. JÜRGENS, "Auswirkungen der EGMR-Rechts-prechung zum Privatsphärenschutz. Möglichkeiten und Grenzen der Umsetzung des "Caroline" – Urteis in deutschen Recht", in: *Neue Juristichen Wochenschrift (NJW)*, (2007), p. 2520.

25 In this sense, MANUEL DA COSTA ANDRADE, "A Tutela Penal da Imagem na Alemanha e em Portugal", in: *Revista de Legislação e Jurisprudência (RLJ)*, Ano 141.º, N.º 3972, Janeiro-Fevereiro de 2012, Coimbra Editora, Coimbra, (2012), pp. 143-144.

26 HUGO LUZ DOS SANTOS, "O jogo e a aposta nos casinos da Região Administrativa Especial de Macau: (breves) subsídios para o enquadramento jurídico das *outstanding chips* e para a *distribuição dinâmica do ónus da prova*: o "admirável" mundo novo no *Gaming*?"; in: *Revista de Administração Pública de Macau (RAP)*, n.º 110, Macau, China, (2016), *passim*.

27 See, ALEC STONE/JUD MATHEWS, "Proportionality Balancing and Global Constitucionalism", in: *Columbia Journal of Transnational Law*, n.º 47, (2008), pp. 72-164.

28 See, DAVID M. BEATTY, *The Ultimate Rule of Law*, Oxford, Oxford University Press, (2004), pp. 34-49.

29 About the North American constitutionalism, see LOUIS SEIDMANN, *Never Mind the Constitution; On Constitution Disobedience*, New York, N.Y., Oxford University, (2012), pp. 12-35.

30 the North American constitutionalism, see JEREMY WALDRON, *Book Review Never Mind the Constitution; On Constitution Disobedience*, in: *Harvard Law Review,* Volume 127, (2014), pp. 1151 e ss.

concerning the legal existent possibilities. In this case, the legal system of gaming and betting and of the credit for gaming are sufficiently ingrained in Macau.

Consequently, the advocated normative solution - the share of information for purposes of prevention and repression of the criminality related to the fraudulent game – passes the test of proportionality (*Verhältnismäßigkeitsgrundsatz*).

From such fact we can infer that the referred normative solution is suitable because it does not exclude the adoption of ways that prevent the performance of at least one principle. It is necessary because the ways above adopted reach their goal to a certain extent. This means that the referred normative solution is covered with diaphanous mantle of proportionality in the strict sense.

The weighing is the objective of the third subprinciple of proportionality in the strict sense. As mentioned above, this subprinciple expresses the weighing of existent legal possibilities[32]. It corresponds to a line that can be named the Law of Weighing[33]. This line says: "The higher the degree of non-fulfillment or allocation of a principle, the greater must be the importance of completing the colliding principle" and under that (the Law of Weighing) a Weight Formula defines the specific weight of all colliding principles[34].

In this case, the Law of Weighing and the Weight Formula (able to subsume in the case of the secondary use of information processing and of information dissemination)[35], determine that the prevailing principle (the prevention and repression of criminality related to the fraudulent game) legitimates constitutionally and legally the normative solution of the share of information among casinos agencies of law enforcement[36], that being a "minimal impairment test of the protected rights" and "the least restrictive alternative"[37,38,39].

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31 See, ROBERT ALEXY, *Theory of Constitutional Rights*, Oxford, Oxford University Press, (2002), pp. 47-49.

32 In a recent Portuguese publication, ROBERT ALEXY, "Direitos Fundamentais e princípio da proporcionalidade", tradução por Paulo Pereira Gouveia, in: *Revista O Direito*, Ano 146.º, (2014), IV, Almedina, Coimbra, (2015), p. 821.

33 ROBERT ALEXY, *Theory of Constitutional Rights, cit.*, p. 102.

34 ROBERT ALEXY, "The Weight Formula", in: *Frontiers of Economics Analysis of Law – Studies in the Philosophy of Law, 3, Cracow, Jagiellonian University Press*, (2007), pp. 9-27; ROBERT ALEXY, *Theory of Constitutional Rights, cit.*, pp. 97-99; in the German language, ROBERT ALEXY, "Die Gewichtsformel", in: *Gedächnisschrift für Jürgen Sonnenschein*, Verlag, Köln, (2003), pp. 771-792.

35 For that reason we can understand that "*the Weight Formula is intrinsically linked to legal discourse. It expresses a basic argumentative form of legal discourse*"; that is why it is related to "*the Subsumption Formula as the only basic argumentative way of legal discourse*"; in this exact sense in the English language, ROBERT ALEXY, "On Balancing and Subsumption", in: *Ratio Juris*, n.º 16, (2003), pp. 433-448; ROBERT ALEXY, *On the Nature of Legal Principles, Archives for Philosophy of Law*, vol. Supl. 119, Franz Steiner & Nomos, (2010), pp. 9-18; ROBERT ALEXY, *A Theory of Legal Argumentation*, Oxford, Claredon Press, (1989), pp. 221-230; in the German language, monografically, ERNST-WOLFGANG BÖCKENFORDE, "Grundrechte als Grundsatznormen. Zur Gegenwartige Lage der Grundrechtesdogmatik", in: *Böckenförde, Staat, Verfassung, Demokratie,* Suhrkamp, Frankfurt am Main, (1991), pp. 188-190; ROBERT ALEXY, *Theorie der Juristichen Argumentation*, (1978), 6ª Ed., Frankfurt am Main, Suhrkamp, (2008), pp. 273-283.

36 As it is referred in doctrine, "*There are certainly many desirable instances of secondary use. Information might be used to stop a crime or to save a life*"; DANIEL SOLOVE, "Taxonomy of Privacy", *cit.*, p. 519.

37 In this sense very recently in the North American doctrine, VICKI C. JACKSON, "Constitutional Law in a Age of Proportionality", in: *The Yale Law Journal*, Vol. 124: 3094, (2015), p. 3114, which we will very closely follow.

38 In this respect, the jurisprudence of the *Canadian Supreme Court, RJR-MacDonald Inc v. Canada* (A.G.), (1995), 3 S.C.R. 199, 342-343 (Can.) (*McLachlin J.*) (emphasizing also that "*the law must be carefully tailored so that rights are impaired no more than necessary*"), acknowledging that "*a range of reasonable alternatives may exist*", but indicating that "*if the government fails to explain why a significantly less intrusive and equally effective measure was not chosen, the law must fail*").

39 In the same sense, in the jurisprudence of the *Us Supreme Court, Graham v. Florida*, 560 U.S. 48, 59 (2010) (the *concept of proportionality* is central to the Eight Amendment); *United States v. Alvarez*, 132 S. Ct 2537 (2012); *District of Columbia v. Heller*, 554 U.S. 570 (2008); *Solem v. Helm*, 463, U.S. 277, (1983) (assessing the *proportionality* of a sentence of life imprisionment); *Pervear v. Massachusetts*, 72 U.S. (5 Wall.) 475, 480 (1867) (suggesting that the Eight Amendment clauses as a whole prohibited punishments that were excessive, or cruel, or unusual); *O´Neil v. Vermont*, 144 U.S. 323, 331 (1892) (quoting a lower court opinion construing the Eight Amendement and in analogous state constitutional provision to ban "*excessive*", "*oppresive*". Or "*unreasonably severe*" punishments, but for other reasons rejecting and attack on a lenghty sentence imposing cumulative time on multiple counts).