



Predictive algorithms and the use of automated decision systems. Legal issues.

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SUMMARY

- Introduction: The use of predictive algorithms...
- Design and evaluation of intelligent models.
- Predictive tools and use of personal data
- Predictive tools and automated decision making
- The right to be informed in the context of automated decisions

THE USE OF PREDICTIVE ALGORITHMS

- The basic definition of an algorithm is simple: a set of step-by-step instructions for solving a problem or performing a task.
- Examples:
- Building blocks
- Retrosynthesis algorithms
- Bioinspired algorithms (Swarm intelligence (ant colony, AIS systems, genetic))
- Fuzzy logic/quantum computing algorithms
- Natural computing
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THE USE OF PREDICTIVE ALGORITHMS

- Concrete examples:
- Apollo algorithm
- COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) Management of Criminal Profiles for Alternative Sanctions of the U.S. Prison System
- Watson/IBM (AI Algorithms)
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Margaret Hamilton, NASA lead software engineer, A guidance program. pic.twitter.com/veweKVHE2n
— JD (@nevesytrof) [December 10, 2014](#)

THE USE OF PREDICTIVE ALGORITHMS

- Conception of some jurists (Erroneous) "An algorithm does not seek to certify the veracity or not of a hypothesis raised -which is what science usually does- but to look for deterministic correlations between some data and others in a totally random way at first. An algorithm is built thanks to the use of a large database ordered in an understandable way (Smart data), which a mathematical model uses randomly, until establishing deterministic correlation patterns between them. Thanks to this, the tool manages to make very precise assessments."
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DESIGN AND VALIDATION OF INTELLIGENT MODELS

- It is necessary to certify that in its preparation no biases have been voluntarily or involuntarily introduced that alter its operation according to the interests or inclinations of the programmers
- the accuracy of its predictions will depend on the quality of the data used in its preparation.
- European Parliament, it will be necessary to "regularly assess the representativeness of datasets [as well as] examine the accuracy and importance of predictions".
- regulate the mechanisms that will ensure an adequate audit of artificial intelligence systems
- Specific rules: REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) Regulation EC N° 1907/2006 (art.13; 25)

DESIGN AND VALIDATION OF INTELLIGENT MODELS

- Recital 71 of the GDPR "the controller must use appropriate mathematical or statistical procedures..., apply appropriate technical and organisational measures to ensure, in particular, that factors that introduce inaccuracies in personal data are corrected and the risk of error is minimised, personal data secured in such a way as to take into account possible risks to the interests and rights of the data subject and prevented, inter alia, discriminatory effects on natural persons on the grounds of race or ethnic origin, political opinions, religion or belief, trade union membership, genetic condition or state of health or sexual orientation, or giving rise to measures to that effect."

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

- Protection of natural persons in relation to their personal data
- Fundamental right (national level Art. 18 EC, Art. 1 LOPD at European level TFE Art.16, CDFUE Art. 8, Art. 2 GDPR)
- valance with other fundamental rights, in accordance with the principle of proportionality.
- Respect for personal, family, home and communications privacy; freedom of thought; consciousness and religion; freedom of expression; etc.
- Special categories of data: Sensitive data Art. 4 GDPR

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PREDICTIVE TOOLS AND USE OF PERSONAL DATA

Principles of processing of personal data (Art.5 GDPR) (TII LOPDP Art. 4-10):

Lawfulness, fairness and transparency

Collected for certain explicit and legitimate purposes and will not be further processed in a manner incompatible with those purposes (Purpose Limitation). (scientific research is not incompatible with these purposes)

Appropriate relevant and limited to those necessary in relation to the purposes being processed (data minimization)

Exact and if necessary updated (Accuracy)

Kept for the time strictly necessary for the purposes of the treatment (limitation of the conservation period)

Processed in such a way as to ensure adequate security of the data, including protection against unauthorised or unlawful processing, loss, destruction or damage; accidental through the application of appropriate technical or organizational measures (Integrity and confidentiality)

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

Requirements relating to the purpose of the processing: The purposes for which the processing of personal data is permitted are described in Art. 5.1.a) and 5.1.b) GDPR. In contrast, the processing of personal data for purposes that do not meet these requirements is not allowed. Namely:

Legality (Art. 5(1)(a) GDPR);

Legitimacy (Art. 5(1)b) GDPR).

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

The treatment will only be lawful if at least one of the following conditions (legal bases of the processing) is met:

- (a) the data subject consented to the processing of his or her personal data for one or more specific purposes;
- (b) the processing is necessary for the performance of a contract to which the data subject is a party or for the application at the request of the data subject of pre-contractual measures;
- (c) the processing is necessary for compliance with a legal obligation applicable to the controller;
- (d) the processing is necessary to protect vital interests of the data subject or of another natural person;
- (e) the processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller;
- (f) the processing is necessary for the satisfaction of legitimate interests pursued by the controller or by a third party, provided that those interests or the fundamental rights and freedoms of the data subject requiring the protection of personal data do not prevail over those interests, in particular where the data subject is a child.

The provisions of point (f) of the first subparagraph shall not apply to processing carried out by public authorities in the performance of their duties.

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

Lawfulness, fairness and transparency:

Under GDPR, the processing must be lawful and pursue legitimate purposes. In addition, it has to be fair and transparent.

The lawfulness is achieved if the purpose of the processing falls within one of the six categories (legal bases) of Art. 6 (1) GDPR.

Legitimacy is a much broader concept, meaning compliance with the letter of the law, the spirit of the law, the values of society (in particular, , CDFUE) and ethical principles. (Art. 29 Working Group)

Loyality is used in its most common meaning. Prohibits manipulative practices by the controller.

Transparency of processing is a vital strategy for balancing the relationship between the controller and the data subject. In the GDPR it is presented as a requirement to be met by the controller, consisting of providing detailed information to both the interested parties and the supervisory authorities.

- Art. 9 GDPR processing of particularly sensitive personal data is in principle prohibited
- • ethnic or racial origin
- • political opinions,
- • religious or philosophical convictions,
- • trade union membership,
- ○ It is about:
- • genetic data,
- • biometric data aimed at uniquely identifying a natural person,
- • health data or
- • data relating to the sexual life or sexual orientation of a natural person.
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PREDICTIVE TOOLS AND USE OF PERSONAL DATA

Rights of data subjects

Right to information + ARCO + right to be forgotten + to portability + not to be affected by decisions made exclusively by automated systems; not to be subject to profiling

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

- ability to infer, mainly by inductive means, information not directly removable that is already available, which gives rise to:
 - i) ability to obtain personal information that has not been provided by the data subject.
 - (ii) high risk of re-identification of anonymised or pseudonymised data
 - iii) tendency to automatism in decision-making
 - iv) risk of classifying people into groups or subgroups according to their personal profiles

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PREDICTIVE TOOLS AND USE OF PERSONAL DATA

New forms of data manifestation (particularities):

It will not depend on the will of the interested party that may give rise to the birth of personal data.

The law cannot so easily foresee the nature of this data and based on it establish its specific legal regime.

"The autonomy of the owner could be expressed once the existence of such data is known and take from that moment the decisions it deems appropriate, without prejudice to the limitations or other provisions provided by law."

PREDICTIVE TOOLS AND USE OF PERSONAL DATA

- Risk of re-identification of the data subject
- Insufficiency of anonymization procedures.
- GDPR: Pseudonymization
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PREDICTIVE TOOLS AND USE OF PERSONAL DATA

- Profiling:
- Risk of basing decisions on profiles created in an automated way, classifying people into groups or subgroups to which certain patterns are associated.
- E.g. Include an oncological patient in protocols that refer to care actions for similar cancerous conditions.

PREDICTIVE TOOLS AND AUTOMATED DECISION MAKING

- GDPR Article 22.1, "1. Every data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects on him or her or similarly significantly affects him/ her."
- It does not specify the minimum and necessary human intervention.
- The Art. 29 Group requires that human intervention go "beyond the mere ratification of what the mechanism indicates."

PREDICTIVE TOOLS AND AUTOMATED DECISION MAKING

- exceptions to Article 22.2,
- Decisions, including profiling, should be allowed if:
- expressly authorised by Union or Member State law applicable to the controller
- for the purposes of control and prevention of fraud and tax evasion,
- to ensure the security and reliability of a service provided by the controller,
- necessary for the conclusion or performance of a contract between the data subject and a controller,
- cases in which the data subject has given his or her explicit consent.
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PREDICTIVE TOOLS AND AUTOMATED DECISION MAKING

(Art. 22 GDPR, restricted scope Profiling and automated decisions)

COMPAS State v. Loomis, 881, N.W.2d 749, 7532 (Wis, 2016)

SyRI Case Judgment of 5 February 2020 of the District Court of The Hague (Rechtbank Den Haag). Reference: ECLI:NL:RBDHA:2020:865 "risk profiles"

RIGHT TO BE INFORMED

- Right to be informed arts. 13.2 f), 14.2 g) and 15.1 h) of the GDPR,
- The owner must be adequately informed not only of the use of computer tools., but of how that tool works.
- It includes, at least, the right to know the elaboration of a profile to know significant information about the logic applied by the algorithm, in understandable terms according to the principle of transparency and sufficiently exhaustive at the same time, without the need to include information about the algorithms used or the disclosure of the entire algorithm

RIGHT TO BE INFORMED

- How is it guaranteed?
- external audit
- social control by specialized civil society
- independent authorities
- Soft law: AEPD-ISMS, 2017, Code of good practice in data protection for Big Data projects"