

# A three axes representation of data protection legislation to support usability <sup>\*</sup>

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**Abstract.** A new perspective on the evaluation of privacy, where rights of the data subjects, privacy principles, and usability criteria are intertwined, is introduced. The perspective is visually represented through a cube (Fig. 1) where each of its three axes of variability captures, respectively, principles, rights, and usability criteria. Our research extends the trustmark scheme proposed by the German EuroPriSe meant to assure users that their personal data are handled in accordance with the General Data Protection Regulation (GDPR). We do this by adding usability criteria to the evaluation. We also reorganize the criteria of EuroPriSe to fit with the simpler cube model we propose. The cube allows visualization of how the three axes interact and which aspects of the rights and principles are of most interest for improving usability.

*Example 1.* One example is the intersection between the transparency principle and the right to be informed, identified in the Article 12 of GDPR. The controllers are obliged to provide the data subject information that should be concise, transparent, intelligible and in easily accessible form, using clear and plain language.

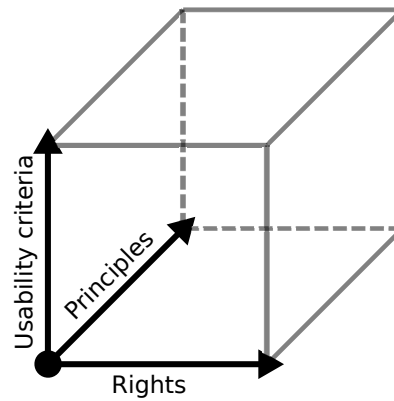
The third vertical axis of the cube is composed of usability criteria determined based on usability goals and context of use, following the standard *Ergonomics of human-system interaction – Part 11: Usability: Definitions and concepts (ISO 9241-11:2018)*. Usability criteria are defined based on the goals coming from the data protection regulations, at the same time considering the needs, goals and characteristics of different types of users and their context of use.

*Example 2.* The case from Example 1 has points of intersection with both the efficiency and satisfaction criteria on the usability axis. It intersects with efficiency, because establishing if the information is easily accessible or clear requires measuring the time and effort expended by specific users, in a specific context, to find the information needed and understand it. At the same time, what a certain type of user perceives as intelligible information, might be perceived as difficult to comprehend by another. Establishing the perceived characteristics of information is an activity categorized under the satisfaction usability criteria.

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Adding usability criteria to the evaluation allows for greater business differentiation, beyond GDPR compliance. Methodologies such as EuroPriSe will certificate the compliance of a product with EU data protection law. However, with the emergence of GDPR the adherence to data protection law is mandatory. As such, all businesses will seek to conform and become equally compliant. Beyond this, our methodology would facilitate the differentiation between services by considering usability aspects when implementing measures for protecting privacy. The ISO 9241-11:2018 standard asserts that designing for usability helps with marketing of a product and with offering the user more and better customized choices.



**Fig. 1.** A generic version of the cube with the three axes of variability: principle, rights, and usability criteria.

**Keywords:** usability criteria · usable privacy · personal data protection · GDPR · visualization · methodology · HCI · privacy evaluation.