Introduction to special section: Governing privacy and data protection issues of emerging technologies[1]

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In this special section of this issue of *Science and Public Policy*, authors are reflecting the fundamental challenges that the rapid progress in science and technology poses for human rights and privacy in particular. They aim to find new answers to the question how a (global) governance of science and technology could address these challenges.
Earlier versions of the papers were presented at the International Conference on Privacy and Emerging Sciences and Technologies, held 27-28 November 2012 in Berlin and at the First European Conference on Technology Assessment that took place in Prague on 13-15 March 2013.

Keywords: privacy; data protection; governance of emerging technologies.

PRESCIENT (short for Privacy and emerging fields of science and technology: Towards a common framework for privacy and ethical assessment) was a three-year research project funded by the European Commission under its Seventh Framework Programme, part of the Science in Society activities of the European Commission's Directorate General 'Research and Innovation'. PRESCIENT was carried out by a multidisciplinary and international research consortium consisting of the Fraunhofer Institute for Systems and Innovation Research ISI (Karlsruhe), Trilateral Research & Consulting (London), the Centre for Science, Society and Citizenship (CSSC, Rome) and the Vrije Universiteit Brussels' research group on Law, Science, Technology and Society (LSTS, Brussels). Started in 2010 the project has ended in March 2013.[2]

PRESCIENT's aim was to provide insights that may contribute to an early identification of privacy related issues arising from emerging technologies, taking seriously both the need to distinguish between privacy and data protection, and the contrasts between the legal, socioeconomic and ethical conceptualizations of each, which do not necessarily match neither have the same kind of consequences. PRESCIENT, in other words, wanted to elaborate the means for an early anticipation of dangers and risks related to emerging technologies along the lines of a imaginary matrix: with two rows distinguishing between privacy and data protection issues, and four columns representing distinct approaches: the legal, ethical, social and economical approaches.

Among other things the project has elaborated an extended privacy typology that takes into account current and future challenges posed by emergent technologies such as soft biometrics, full DNA sequencing, unmanned aircraft systems or human enhancement technologies (Finn and Wright 2012; Finn et al. 2013; Kukk and Hüsing 2011).

The legal research aimed at outlining the manner in which EU law has constructed the rights to privacy and to personal data protection. Indeed, from a legal viewpoint

the two rights have a different content and architecture, and they are underpinned by another rationale (data protection therefore being both more and less than "informational privacy", as is often posited). Building upon this, it has then tried to determine how to best articulate the two rights in the face of future and emergent technologies (for a more in depth account, see Gellert and Gutwirth 2013).

The ethical approach to privacy and data protection, concerned with morality in social sciences and humanities terms, has then investigated the ethical caveats surrounding privacy and data protection. Finally the PRESCIENT team has suggested a framework for an integrated approach towards privacy and ethical impact assessment that is a timely topic in the light of the current reform of the European data protection framework and technology governance approaches summarised under the umbrella term "responsible research and innovation" (Wright and Friedewald 2013).

On 27 and 28 November 2012, the PRESCIENT consortium held the project's final conference in Berlin: the well attended International Conference on Privacy and emerging technologies, which brought together a impressive list of speakers and interventions, representing different perspectives and scientific disciplines, as well as representatives of different concerns and views on the issues. In addition the PRESCIENT consortium organised a workshop on "Privacy in the Internet World" as part of the First European Conference on Technology Assessment that took place in Prague on 13-15 March 2013. The articles in this special section of *Science and Public Policy* are all an elaboration of papers that were presented during these two PRESCIENT events. In the wake of the conference, the authors have resubmitted their papers, which then were all reviewed by at least two competent and interested peers. This has lead (when possible) to a further sharpening and improvement of the quality of the contributions.

The harvest is impressive. Speaking at a high level, all the articles follow the same movement: starting from issues that are effectively rooted in the emergence of technologies that spawn new and sometimes wholly unexplored possibilities which in turn affect privacy and/or data protection, they deploy not only innovative and prospective analysis but they also propose conceptual and forward-looking options.

In the first article *Bernd Carsten Stahl* who is a Professor of Critical Research in Technology at De Montfort University in Leicester gives a critical account of the concept of Responsible Research and Innovation (RRI), a novel way of governing research that is becoming popular in European research and innovation policy. He argues that privacy and the assessment of privacy impacts of new technologies are core RRI elements in a time where personal data is increasingly becoming the lubricant of a globalised network economy and the target of commercial and governmental data collection activities.

In the second article *Gemma Galdon Clavell,* who is Programme Director in the Department of Sociology of Barcelona University, is trying to initiate a critical public debate around the vision of so called "smart cities". The argues that many of the smart solutions developed under this label in the last decade have – apart from uncertain und yet unproven benefits – the potential to establish a pervasive urban surveillance network. She suggests that a suitable governance model is a necessary step towards a more responsible, cost-effective and human rights preserving approach to smart cities.

In the third article *Stefan Strauß* and *Michael Nentwich* who are respectively a researcher at and the director of the Institute for Technology Assessment of the Austrian Academy of Sciences are dealing with the shifting and blurring border between private and public spaces in social network sites leading to a further intensification of already existing conflicts about privacy. They argue that the rapidly growing number of possibilities to invade privacy and harm citizens' right to informational self-determination raises the demand for policy intervention, suggesting a broad adoption of approaches such as privacy-by-design, privacy-by-default and strengthening the role of DPAs to revitalize privacy as a public value.

In the forth article *Sebastian Sevignani* who is a researcher at the Unified Theory of Information Research Group explores the trend of commodification of privacy in the Internet. He shows how dominant online business models based on personal data come in conflict with users' need for privacy leading to a feeling of powerlessness. He also presents the possessive individualistic way of thinking that broadly ignores the fundamental rights character of privacy and leads to commodification. The author presents considerations which regulatory and technical safeguards could be pursued by public policy.

In the fifth article *Leon Hempel*, *Lars Ostermeier*, *Tobias Schaaf* and *Dagny Vedder* who are researchers at the Centre for Technology and Society at Technical University Berlin present a bottom-up approach for the systematic assessment of social impacts of security technologies. In contrast to conventional methods that try to reduce social as well as economic costs they assume that unintended negative impacts may not lead to explicit data protection infringements but result in a slow but steady shift in the discourse about what is "normal" in certain contexts. Consequently the authors suggest a process informed by social theory that ensures citizen involvement and transparency.

In the final article *David Wright* and *Michael Friedewald*, respectively managing partner of Trilateral Research & Consulting in London and head of the ICT research unit at the Fraunhofer Institute for Systems and Innovation Research in Karlsruhe argue that from a policy point of view it is necessary to bring together different types of impact assessments some of which have coexisted for a long time. However for a more holistic approach to

research policy as summarised under the term RRI an attempt is made to integrate such diverse approaches as privacy and ethical impact assessments. The authors show that although both have originated from different environments their basic ideas and structures are similar and suggest a common process for the integrated assessment that might even serve as a prototype for the integration of further assessment elements.

In this time of transition in the field of privacy and data protection regulation we want to demonstrate that, far from the dystopian or fatalist discourses according to which, privacy would be dead in the information age, it is still a living and enacted everyday, and this notwithstanding the strong and vibrant right that can – and needs to – be reinvented and re-enacted everyday, and this notwithstanding the strong and successful parallel development of data protection. Data protection does not (at all) take over the role and importance of privacy: it works differently, is not similar, covers other issues, and so on. Privacy is there to stay. Future and emerging technologies can participate to the activation of the realisation of this endeavour. Yet, how exactly to work successfully in that direction, is a matter of future collective experiments. The different contributions of this special issue have laid some groundwork, but we are still at the beginning and much is still to be done in devising the kind of (information) society we want to live in.

We wish you pleasant readings, which we hope will foster inspiration for further discussion and reflection.

Notes

1. This introduction to the special section is a „twin" of an editorial for a special issue of *Computer Law &*

Security Review containing the papers with a legal focus presented at the PRESCIENT final conference (Gutwirth and Friedewald 2013).

2. This work was co-financed by the European Commission's 7th Framework Programme for Research and Innovation under grant agreement number 244779. Deliverables and results can be found at http://www.prescient-project.eu/

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