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## Comment

## Interdisciplinarity in practice: Challenges and benefits for privacy research

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## A B S T R A C T

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The goal of this paper is to draw the lessons learned from a project that involved security systems engineers, computer scientists, lawyers and social scientists. Since one of the goals of the project was to propose actual solutions following the privacy by design approach, its aim was to go beyond multidisciplinary and build on the variety of expertise available in the consortium to follow a true interdisciplinary approach. We present the challenges before describing the solutions adopted by the project to meet them and the outcomes and benefits of the approach. We conclude with some lessons to be drawn from this experience and recommendations for future interdisciplinary projects.

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## 1. Multidisciplinarity and interdisciplinarity

Multidisciplinarity and interdisciplinarity are often praised in official statements and put forward in calls for projects but one must admit that the distance is great between rhetoric and

reality. As noted in a report dedicated to the European FET programme,<sup>1</sup> “there is a discrepancy between willingness to develop multidisciplinary research at strategic level and the reality in the field”. In many areas, however, interdisciplinarity is not really an option; it is a prerequisite to be able to deal with the complexity and the multiple dimensions of the problems

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<sup>1</sup> Multidisciplinary research in FET, V. Gayraud, FET Trainee Report, 24/11/05.  
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to be solved. Privacy is one of these areas because privacy protection is a legal right that can be jeopardized, put into question, or enhanced by many technical, social and economic evolutions. An interdisciplinary approach is necessary not only to design effective privacy protection instruments but also to understand the complexities of the concept itself, its multiple facets and interpretations. However, setting up a successful collaboration between disciplines which are as varied and remote as computer science, law and social sciences is a challenge in itself.

First, a distinction should be made between multidisciplinary and interdisciplinarity even if these words are sometimes used interchangeably. Different definitions have been proposed for these terms<sup>2</sup> in the literature.<sup>3</sup> In this paper, we use them in the following sense:

- Multidisciplinary is the basic level of collaboration between disciplines. It refers to different disciplines “working on a problem in parallel or sequentially, and without challenging their disciplinary boundaries.”<sup>4</sup> Each team produces its own results, without any specific integration effort with other disciplines even if the results are exchanged and discussed in order to enhance the global understanding of the object under study.
- Interdisciplinarity “brings about the reciprocal interaction between disciplines”, “in order to generate new common methodologies, perspectives, knowledge.”<sup>5</sup> The interdisciplinary approach is more ambitious as it aims to develop research results integrating contributions from different disciplines, which does not exclude specific benefits in each discipline (new ways of considering a question, methodological transfers, etc.).

In fact, multidisciplinary and interdisciplinarity should not be seen as two entirely distinct categories but rather as the two extremities of a continuum and a project involving several disciplines can generally be placed somewhere in between.

The goal of this paper is to draw the lessons learned from the PARIS European project that involved security systems engineers, computer scientists, lawyers and social scientists. Since one of the goals of the project was to propose actual solutions following the privacy by design approach, its aim was to go beyond multidisciplinary and build on the variety of expertise available in the consortium to follow a true interdisciplinary approach. We first briefly describe the context and the

objectives of the project in [Section 2](#) before presenting the challenges to be addressed to follow the interdisciplinary approach in [Section 3](#). In [Sections 4](#) and [5](#) we describe respectively the solutions adopted by the partners to meet these challenges and the outcomes and benefits of the approach. We conclude in [Section 6](#) with some lessons to be drawn from this experience and recommendations for future interdisciplinary projects.

## 2. Context: interdisciplinarity as a condition of success

The context of the project, called PARIS,<sup>6</sup> was the increasing adoption of surveillance infrastructures all over the world and the need to protect the right of citizens for privacy, justice and freedom. Two key notions were put forward in the project, consistent with the new European General Data Protection Regulation: privacy by design and accountability (including Privacy Impact Assessment). More precisely, the main goal of the project was to propose a theoretical generic framework for the design of privacy preserving and accountable surveillance systems together with guidelines to define specialized frameworks suitable in different contexts (e.g. for different countries or types of technologies). Two use cases were considered: the first one being based on biometrics and the second one on video analysis and forensics search technologies.

The main challenge of the project was to provide tools to try to reconcile the operational objectives of a surveillance system with the necessity to preserve the fundamental rights of the people subject to such surveillance. Considering the variety of considerations and requirements to be taken into account (technical, legal, social, etc.), interdisciplinarity was not a choice for this project: it was a condition for its success. The composition of the consortium reflected this need, including computer scientists (from industry<sup>7</sup> and research<sup>8</sup>), lawyers<sup>9</sup> and social scientists.<sup>10</sup> But interdisciplinarity is a challenge in itself especially when it concerns disciplines with very different histories, cultures and practices (research development, assessment, collaborations, etc.). These challenges are discussed in the next section.

## 3. Challenges raised by interdisciplinarity

Even when they have a common object of study, different disciplines usually take very different perspectives and follow different approaches, with different objectives and different ways to assess their results. All these differences can become sources of misunderstanding, frustration, and dispersion and may

<sup>2</sup> And others such as pluridisciplinarity, crossdisciplinarity, or transdisciplinarity.

<sup>3</sup> For example in: Ten cheers for interdisciplinarity : the case for interdisciplinary knowledge and research, M. Nissani, *The Social Science Journal*, Vol. 34, No 2, pp. 201–216, 1997. Multidisciplinary, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness, B.C.K. Choi, A.W.P. Pak, *Clin. Invest. Med.*, Vol. 29, No 6, pp.351–364, 2006. Multidisciplinary research in FET, V. Gayraud, FET Trainee Report, 24/11/05.

<sup>4</sup> Multidisciplinary, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness, B.C.K. Choi, A.W.P. Pak, *Clin. Invest. Med.*, Vol. 29, No 6, pp.351–364, 2006.

<sup>5</sup> PARIS is an acronym for “PrivAcY pReserving Infrastructure for Surveillance”.

<sup>6</sup> See footnote 5.

<sup>7</sup> Trialog (France), Thales Communication & Security (France) and Visual Tools (Spain).

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