

Enhance ethical reflexivity in ICT projects

Current trends in nanotechnology, ICT, privacy and security

Interview with Prof Dr Bernd Carsten Stahl, De Montfort University, UK

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Abstract

The ETICA project, coordinated by Professor Stahl aims to identify and start discussions on ethical issues implied by emerging ICT applications in early stages of development. This should lead to new proposals for governance of such issues not only through new legislation, but also by improving reflexivity of researchers in European ICT research projects. Whereas nano-ICT is an important area of research with relevant ethical aspects mainly related to convergence of nano-, bio- and information technologies and cognitive sciences (NBIC), these issues are much broader than the scope of the ETICA project on ethics of emerging ICT he is coordinating.

Under the header of Nanotechnology, ICT, privacy and security, ObservatoryNano aims to highlight technological and economic trends in nanotechnology for ICT and security applications with potential ethical and social implications. Simultaneously, current debates on relevant issues in nanobioethics among ethicists and social scientists, policy making circles and stakeholders are analysed and confronted with the issues emerging from the technical and economic trends. This way, emerging issues not discussed sufficiently can be identified and brought to the attention of policy makers in the third annual report on nanotechnology, ICT, privacy and security to be published online in the spring of 2011. The series of interviews with opinion leaders is intended to be a compilation of different views on the relevant issues currently in debate from different perspectives.

Interview

Ineke Malsch: What are the main issues currently in debate on emerging ICT applications? According to the ETICA European Policy Brief of October 2010, ethical review of proposals submitted under the EU 7th Framework Programme for RTD (FP7) is not sufficient to handle ethical implications of the technology for society.

Bernd Stahl: Yes, the project is aimed at European policy makers. The ethics review for FP7 is currently inadequate for finding some of the issues

resulting from emerging ICT projects. We hope to come up with practical proposals how to improve that. The current procedure is that project proposers fill in the last two pages of the form, ticking boxes stating that the project won't have privacy implications and won't implant chips into people etc. This doesn't reflect the complexity of ethical issues resulting from the project. We will have to think about new ways to address those.

Ineke Malsch: There is also a need for a new ethical governance approach. This is only related to governing EU funded proposals, not with legislation governing the use of ICT in society?

Bernd Stahl: Governance of course covers the legal framework as well. We have just started a new work package dealing with the implications of our findings on key emerging technologies for legislation. It is too early to say what will be the result of that. The focus of our project is how to inject reflectivity in the process of developing and running research projects. That could be done via legislation which requires reflection on projects. It could be done via guidelines on running projects or other ways. We are not yet sure what we will recommend in detail.

Ineke Malsch: Do nanotechnology and other emerging technologies play a role in current discussions on these issues? How are they discussed? In the ETICA project you have found seven problematic emerging ICT developments, ranked in the following order:

- 1) Ambient Intelligence
- 2) Augmented and virtual reality
- 3) Future Internet
- 4) Robotics and Artificial Intelligence and Affective Computing
- 5) Neuroelectronics and Bioelectronics and Human-Machine Symbiosis
- 6) Cloud Computing
- 7) Quantum Computing

Bernd Stahl: During the development of our methodology we decided to concentrate on technologies, less on applications, as the project title suggests. It is beyond our capacity to look at all possible applications of emerging ICT. This is why we aggregated findings from ethical literature on over 100 individual technologies, 70 application examples and 40 artefacts into a limited list of high level abstract technologies. With technologies we mean socio-technical systems that change the way we interact with the world, with ethical implications. This list of eleven is the result of multidisciplinary evaluation of the technologies, including law, gender, technology assessment and institutional ethics as reflected in publications by the European Group on Ethics and Ethics Boards across the EU. The list is ranked in the order of the socio-technical systems that are most likely to raise controversies and also most likely to emerge. Quantum computing may be likely to raise all sorts of interesting issues,

but is not likely to emerge soon. Others have been around for a long time and well established, like Ambient Intelligence, Robotics and Artificial Intelligence. As a consequence they are most likely to be more intrusive in daily life.

We found a lot of references discussing nano-ICT and it has been on our long list of emerging ICT. We have taken it out of the shortlist, because the ethical issues of converging nano, bio, info technologies and cognitive sciences go beyond the boundaries of this project. Still, convergence of nanotechnology and ICT has important ethical implications. The question of boundaries is important. Would nanotechnology raise the same problems or different problems as ICT?

Ineke Malsch: Are you going to evaluate the listed technologies from the top down?

Bernd Stahl: We are currently examining the ethical literature to identify the ethical issues which have been found for all these technologies. We have a longish document listing all the controversies that have been reported. We are still working on finding common denominators and shared issues. I hope to be able to come up with this in the near future. There are some unsurprising findings. Most technologies can raise privacy issues. There are also some less obvious and more interesting issues, such as the distribution of responsibility in distributed technical systems, the possibility of manipulations of emotions or mental states or the possibility of machine morality. These issues will be elaborated on the project website.

Ineke Malsch: Have you investigated only ethical literature or also debates among policy makers and stakeholders?

Bernd Stahl: For the identification of ethical issues we have only looked at ethical literature. For the evaluation we also study legal documents. We try to contrast different viewpoints.

Ineke Malsch: Can you say which societal groups (e.g. policy makers, business, natural scientists and engineers, social scientists and philosophers, NGO's, politicians) are currently involved in the debate?

Bernd Stahl: We have looked mostly at published literature, including around 180 current EU pieces of regulations and legislations where one or more of our technologies touched upon. We also looked at literature on Technology Assessment. In many cases this incorporates views of civil society actors. This is multidisciplinary. We have run focus groups on 11 identified technologies in the UK and Finland to get lay persons views on our findings. We have also surveyed all relevant ICT project coordinators, to find out if the list of technologies is appropriate and really being researched.

Ineke Malsch: How do the technologies studied in this project relate to current regulations in Europe and elsewhere? (E.g. regulations regarding privacy, data protection, charter of fundamental rights) Is a gap in regulation already visible?

Bernd Stahl: The existing regulations don't cover many interesting emerging ICT. It is not clear to what degree legislation should cover the issues. This is open to debate. It depends on how regulation covers ethical issues. Some issues are very well covered, including privacy, data protection, intellectual property and security.

Some issues are currently not regulated, including:

- Autonomy, freedom, agency
- Possibility of persuasion or coercion
- Responsibility, liability
- The possibility of machine ethics
- Access, digital divides
- Power issues
- Consequences of technology for our view of humans
- Conceptual issues (e.g. notions of emotions, intelligence)
- Link between and integration of ethics into law
- Culturally different perceptions of ethics.

These issues are really novel and it is not known how to deal with them. I am not sure what recommendations will be made at the end of the project.

Ineke Malsch: What proposals are being discussed for privacy or security enhancing technologies? Do emerging technologies such as nanotechnology play a role in these discussions?

Bernd Stahl: We have looked at methods of integrating ethics into technology, such as value sensitive design or privacy by design. The TU Delft has taken care of this. There has been debate within the consortium about the ability to frame things in a way that allows suitable value sensitive design. In a technical project, where technical experts work on technical issues, how will they come to an understanding of what values to design into the technology? How will these values be questioned and subject to debate? Value sensitive design and privacy by design are useful approaches, but who frames the problem according to which values? The problem starts with the conceptual uncertainty of those things. Privacy is context dependent, and how it works in practice is not easy to predict beforehand. What is meant by security? In our governance recommendations we will try to suggest ways to bring reflexivity into the projects rather than propose substantive things policy makers should do.

Ineke Malsch: How do you see your own role in the developments and discussions? To ask questions?

Bernd Stahl: Yes, hat broadly captures it. Ethics doesn't normally give answers and tells you what to do but hopefully asks the right questions. On the basis of those questions, actors can engage in processes of finding suitable answers. The questions are asked e.g. to the European Parliament. The partners in the consortium are engaged in different activities in this area. One partner is a member of the European Group on Ethics, and involved in European policy making at a high level. Other partners like the Finnish VTT are more into technology development, and do a lot of user-centred development. We in De Montfort University are involved in our national ICT research policy making of the Engineering and Physical Sciences Research Council. We are currently discussing a proposed project to explore more specific ICT and ethics. It is a multi-level debate and we engage in different areas.

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| <p>Name: Function: Organization: Country: Website: Role in debate on nanotechnology, ethics and society:</p> | <p>Prof Dr Bernd Carsten Stahl Director Centre for Computing and Social Responsibility, Informatics Dept. De Montfort University UK http://www.tech.dmu.ac.uk/~bstahl/ Professor Stahl's area of research is normative questions arising from the use of information and communication technology, in particular regarding responsibility. He is project coordinator of the ETICA project on Ethical Issues of Emerging ICT Applications http://www.etica-project.eu/. His group also participates in the project PHM-ethics on personal health monitoring: http://ethics.p-h-m.org/.</p> |
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Relevant recent publications

ETICA presentation during "Governance and Ethics of Emerging ICT and Security Technologies", European Commission, 18 November 2010, Brussels (forthcoming)

Stahl, Bernd Carsten; Heersmink, Richard; Goujon, Philippe, Flick, Catherine; van den Hoven, Jeroen & Wakunuma, Kutoma (forthcoming): "Identifying the Ethics of Emerging Information and Communication Technologies: An Essay on Issues, Concepts and Method " In:

International Journal of Technoethics

Stahl, B.C. "The Ethics of Privacy in the Digital Society - Ethical issues of emerging ICTs" A Fine Balance: Privacy in the Digital World. Digital Systems KTN, 08.06.2010, London, UK ([slides](#))

Stahl, B. C., Elizondo, D., Carroll-Mayer, M., Zheng, Y. & Wakunuma, K. (2010) Ethical and Legal Issues of the Use of Computational Intelligence Techniques in Computer Security and Computer Forensics. In *Proceedings of the 2010 International Joint Conference on Neural Networks*, 18 - 23 July 2010, Barcelona, Spain. (Paper)

Stahl, Bernd Carsten; Heersmink, Richard; Goujon, Philippe, Flick, Catherine; van den Hoven, Jeroen; Wakunuma, Kutoma, Ikonen Veikko & Rader, Michael (2010): "Issues, Concepts and Methods Relating to the Identification of the Ethics of Emerging ICTs" In *Proceedings of the 21st International Information Management Association annual conference*, 18-20 October 2010, Utrecht, The Netherlands ([Paper](#))

Wakunuma, K. & Stahl, B. C. (2009). A framework for identifying emerging ethical issues in future and emerging technologies. In *Proceedings of the ICT that makes the difference international conference*, 22-25 November 2009, Brussels, Belgium ([Abstract](#))

Coupland, S., Wakunuma, K. & Stahl, B. C. (2009). Identifying Ethical Issues during the Development of a Computer Vision Based Aml System: A Case Study. In *Proceedings of the 3rd IEuropean Conference on Ambient Intelligence*, 18-21 November 2009, Salsburg, Austria ([Paper](#))

Stahl, B. C., Rogerson, S. & Wakunuma, K. (2009). Future Technologies: The Matter of Emergent Ethical Issues in Their Development. In *Proceedings of the 1st International Conference on Future Computational Technologies and Applications, FUTURE COMPUTING 2009*, 15-20 November 2009, Athens/Glyfada, Greece ([Paper](#))

Stahl, B. C.; Rogerson, S. & Wakunuma, K. (2009). Understanding Ethical Issues of Emerging AMI Technologies in Europe (A Framework). In *Proceedings of the 1st International Workshop on Ethical Design of Ambient Intelligence in conjunction with the 5th International Conference on Intelligent Environments (IE09)*, 20-21 July 2009, Technical University of Catalonia, Barcelona, Spain ([Paper](#))

Stahl, Bernd Carsten; Rogerson, Simon & Wakunuma, Kutoma (2009): Landscapes of ethical issues of emerging ICT applications in Europe In: *Proceedings of the Society for Philosophy and Technology 2009 Conference (SPT)* 08 to 10 July 2009, Delft, The Netherlands ([Poster](#))

Stahl, B. C., & Rogerson, S. (2009). Landscapes of Ethical Issues of

Emerging ICT Applications in Europe. In *Proceedings of the Eighth International Conference of Computer Ethics: Philosophical Enquiry*. 26-28 June 2009, Corfu, Greece.
([Paper](#)) ([Presentation](#))

About observatoryNano

The observatoryNANO project is funded under FP7 for four years from April 1st 2008. Its primary aim is to support European decision-makers with information and analysis on developments in nanoscience and nanotechnology (N&N). It will collate and analyse data regarding scientific and technological (ST) trends (including peer-reviewed publications, patents, roadmaps, and published company data) and economic realities and expectations (including market analysis and economic performance, public and private funding strategies). The ST and economic analysis will be further supported by assessment of ethical and societal aspects, impacts on environment, health and safety, as well as developments in regulation and standardisation. Although much of this work will be performed within the consortium, the project is working cooperatively with other initiatives to ensure that effort is not duplicated and that resource sharing and output are maximised. To date liaisons have been established with international organisations including the EPO, OECD, and ISO, and will continue to be established with other relevant organisations such as European Technology Platforms (ETPs), ERA NETs, and other EUfunded projects.

The observatoryNANO project is led by the Institute of Nanotechnology (IoN) (UK), and includes: VDI Technologiezentrum (DE), Commissariat à l'énergie atomique (CEA) (FR), Institute of Occupational Medicine (IOM) (UK), Malsch TechnoValuation (MTV) (NL), triple innova (DE), Spinverse (FI), Bax and Willems Consulting Venturing (B&W) (ES), Dutch National Institute for Public Health and the Environment (RIVM) (NL), Technical University of Darmstadt (TUD) (DE), Associazione Italiana per la Ricerca Industriale (AIRI) (IT), Nano and Micro Technology Consulting (NMTC) (DE), Swiss Federal Laboratories for Materials Testing and Research (EMPA) (CH), University of Aarhus (DK), MERIT - Universiteit Maastricht (NL), Technology Centre AS CR (CR).

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