FIDIS

Future of Identity in the Information Society

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Summary

Training for PhD students within FIDIS is conducted through structured and timely events held at or in association with an academic institution from within the FIDIS network. The target of the FIDIS Doctoral Consortium is to establish an interdisciplinary network of PhD-students through such structured and timely meetings. To this end, the objective of this deliverable was to hold a larger DC event jointly with the FP6 funded ACGT project (Advancing Clinico-Genomic Trials on Cancer). The event was successfully held on the 17th – 20th June in Fodele, Crete, with the specific aim of introducing participants to some of the varied aspects and issues of body-centric identity and as a by-product to further publicise the work of FIDIS. Indeed, whilst assuring the interests of FIDIS, the event added value by specifically targeting participants from outside of the FIDIS network.

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17. IBM Research GmbH	Switzerland
18. Centre Technique de la Gendarmerie Nationale (CTGN)	France
19. Netherlands Forensic Institute (NFI)[2]	Netherlands
20. Virtual Identity and Privacy Research Center (VIP)[3]	Switzerland
21. Europäisches Microsoft Innovations Center GmbH (EMIC)	Germany
22. Institute of Communication and Computer Systems (ICCS)	Greece
23. AXSionics AG	Switzerland
24. SIRRIX AG Security Technologies	Germany

[1] Legal name: Stichting Katholieke Universiteit Brabant

[2] Legal name: Ministerie Van Justitie

[3] Legal name: Berner Fachhochschule

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Foreword

FIDIS partners from various disciplines have contributed as authors to this document. The following list names the main contributors for the chapters of this document:

Chapter	*Contributor(s)*
All Chapters	Deliverable Editors

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1 Executive Summary

Establishing long-term links, i.e. beyond the life-time of the FIDIS NoE, between partners is key to ameliorating the research fragmentation issues both at a fundamental level across disciplines and at the broader level across Europe. The specific aim of the FIDIS Doctoral Consortium is to establish an interdisciplinary network of PhD-students through structured events and as such these events are clearly of high value. The consortium is an important integrative and disseminative part of the Network: It connects students and researchers from the disparate FIDIS domains together, fosters interdisciplinary collaboration and is an important platform for networking. Indeed being a heterogeneous environment, the DC meetings are a unique opportunity to exchange ideas and build a true research network.

The target for this Workplan was to build upon previous structured training within the valuable FIDIS PhD student community based on feedback from the students and other participants during previous events held by WP8 and WP15, and from the FIDIS network as a whole. While it has been noted in previous WP15 deliverables that interest in the smaller DC events has somewhat dwindled due to a variety of reasons, the larger events, which offer more overall value to the participants, are still popular. This is in part because such events are designed to tie-in with other closely related events and projects to expand the knowledge base. This also, as a by-product, serves to further publicise the work of FIDIS.

The objective of this deliverable was to hold a larger DC event jointly with the FP6 funded ACGT project (Advancing Clinico-Genomic Trials on Cancer). Several institutes and research groups of Crete based FORTH (Foundation for Research and Technology - Hellas) are key players in the ACGT research activities, and so to capitalise on this, the event was successfully held on the 17^{th} – 20^{th} June in Fodele, Crete. The specific aim was to introduce participants to some of the varied aspects and issues of body-centric identity, such as biometrics, eHealth, ICT implants and handling of biomedical data. To this end, a diverse group of participants ranging from young doctoral students to leading researchers in their fields were encouraged to engage in discussion, dialogue and debate in an informal and supportive setting. The event proved to be notably successful, with 19 delegates from 7 countries actively participating. The presentations and other material from the event are available on the internal FIDIS portal.

2 Introduction

A Network of Excellence (NoE) is an instrument for strengthening excellence by tackling the fragmentation of research across Europe, where the main deliverable is a durable integration of the research capacities of the participants. The exchange of knowledge is essential in this context, and considered one of the *desiderata* within FIDIS. Equally, establishing long-term links, i.e. beyond the life-time of the NoE, between partners is key to ameliorating the fragmentation issues both at a fundamental level across disciplines and at the broader level across Europe. One core method by which both can be attained is through the cross discipline training of PhD students within the FIDIS network.

The 'FIDIS Doctoral Consortium' is an important integrative and disseminative part of the Network: It connects students and researchers from the disparate FIDIS domains together, fosters interdisciplinary collaboration and is an important platform for networking. Indeed being a heterogeneous environment, the DC meetings are a unique opportunity to exchange ideas and build a true research network. Moreover, the DC events contribute substantially to the dissemination of the FIDIS results both internally and externally, allowing for information flow both in and out of the dedicated network. While much of the work developed and discussed during these events has been the basis of subsequent conference submissions by the participants, collaborative, cross-discipline journal publications have also started to appear as a direct result of these events[4].

Within the 5th Workplan of FIDIS, there is no provision made for a Summer School event as in previous Workplans, e.g. D15.2 and D15.3, since the time in which these events can run falls after the end of the project. Instead, it was decided that a larger DC event, jointly held with another FP6 funded project, was to be run. This DC event was organised in cooperation with the ACGT project[5] (Advancing Clinico-Genomic Trials on Cancer) whose remit is complementary to that of FIDIS. The participation of members of this project enabled the exchange of ideas between researchers from other fields. Such co-operation helped render this event even more valuable to the participants.

[4] E.g. PIMENIDIS L. & KOSTA, E. '*The impact of the retention of traffic and location data on the internet user*', DuD 2/2008, p. 92.

[5] See: http://www.eu-acgt.org/

3 FIDIS DC event "D15.5: Identity of the mind, body and spirit"

From the 17th to the 20th June 2008, a FIDIS DC event was successfully held in co-operation with the FP6 funded ACGT project (Advancing Clinico-Genomic Trials on Cancer) on "Identity of the mind, body and spirit". Several institutes and research groups of Crete based FORTH (Foundation for Research and Technology - Hellas) are key players in the ACGT research activities, and so to capitalise on this, the event was held in Fodele, Crete. The specific aim was to introduce participants to some of the varied aspects and issues of body-centric identity. Below are detailed the key aspects of the event, the full event programme is given in Annex 1, the full list of participants in Annex 2 and the external speakers' biographies in Annex 3.

3.1 Event synopsis

The advanced and expanding use of emerging technologies in the medical and health sector have created new challenges. The aim of this event is to focus on the technical, ethical and legal implications of new technologies in the medical and health sector, biometrics, bio-databases, processing of medical and health data, human implants, profiling, and other related topics.

The event took the form of an academic workshop, with keynote speakers and presentations of research by the participants. The participants submitted extended abstracts that fell under the broad topic of the DC event and these were presented and discussed at the event during structured workshop sessions (see Annex 1).

A series of keynote speeches (see Annex 2) reflected the underlying theme of the DC Event, covering aspects such as human/machine symbiosis, emerging technologies and privacy, nanotechnologies, social web and communities of use in the domain of health and social care, post-genomic research, security, privacy and legal issues related to genetic data. Subsequent discussion from participants served to further enhance the ideas generated by the keynote speeches.

This DC event introduced for the first time the use of "discussants". Each participant, in their role as discussant, was assigned another participant's paper to read, and subsequently critically discuss after its presentation. The main task for the discussants was to identify important points for feedback and to kick off the subsequent discussion and debate. The introduction of discussants was very successful, and served to trigger vivid discussion following the presentation of each paper.

The participants were also asked to collaborate in interdisciplinary groups by combining their skills and knowledge to address a series of interactive discussion tasks, as described in Annex 4. Each group was supported by experienced researchers in order to guide their progress. The groups generated some creative ideas and interesting considerations which were subsequently debated between all of the participants.

3.2 Conclusion

This event proved to be notably successful, with 19 delegates from 7 countries actively participating, with notable intensive discussions between Ph.D. students and acknowledged senior researchers from different disciplines. The participants' presentations are listed in Annex 1, and are available on the internal FIDIS portal. Annex 2 gives the full list of participants and Annex 3 contains short biographies of the invited external speakers. Finally Annex 4 describes the interactive tasks that were assigned to the participants.

This DC event was certainly timely, with the theme on body-centric identity issues in relation to current and future technologies in the medical and health sector tying in very well with on-going FIDIS work, and highly active research topics. Equally, the co-operation of ACGT and FIDIS for this event worked very well and proved highly complementary.

Overall, the feedback from the participants was overwhelmingly positive, especially with regard to the choice of topic, its relevance to their own work, the wider work of their institution and the involvement of speakers external to FIDIS. Equally, the consensus was that a good balance between the represented disciplines was found to the benefit of the event and its participants. More generally, it was widely acknowledged that the organisation, administration and location were of an excellent standard and that the event objectives were met to the satisfaction of all participants.

Annex 1: Event Programme

Final Program

Tuesday, June 17th

09:45 – 10:15	Welcome and administrative matters *(Eleni Kosta)* Introduction of the participants	
10:15 – 11:00	**Keynote Speech: FROM PERVASIVE TO INVASIVE – HOW TO BUILD BETTER HUMANS** *(Mark Gasson, University of Reading)* In recent years scientists have pointed to a new way in which humans might capitalise on the advances in technology. Proposed is a human/machine symbiosis – a physical linking of the two entities such that humans can seamlessly harness the power of machine intelligence and technological capability. With medical technology already blurring this transition, will our next evolutionary step as humans mean that we all become part machine?	***Dr. Mark Gasson*** *is a senior research fellow at the University of Reading, UK, and an associate editor of the new Springer published FIDIS journal IDIS.*
11:00 – 11:30	COFFEE BREAK	
11:30 – 12:00	**Keynote Speech PART II: EMERGING TECHNOLOGIES ATE MY PRIVACY** *(Mark Gasson, University of Reading)* Here we investigate the ebbing of our privacy through emerging technologies for detecting biosignatures, and how wearable technology is turning *sur*veillance into *sous*veillance.	
	PARTICIPANT'S PRESENTATIONS PART I *(CHAIR: MARK GASSON)*	
12:00 – 12.20	Privacy Awareness - A Means to Solve the Privacy Paradox?	*Stefanie Pötzsch (T.U.Dresden)*
12:20 – 12.30	*Discussant: Hans Hedbom*	
12:30 – 12:50	A Survey on Transparency Tools for Enhancing Privacy	*Hans Hedbom (KAU)*
12:50 – 13:00	*Discussant: Stefanie Pötzsch*	
13:00 – 14:00	LUNCH	
14:00 – 15:30	**Keynote Speech: BIG RESEARCH QUESTIONS FOR A SMALL TECHNOLOGY: AN EXPLORATION OF THE SCIENTIFIC AND REGULATORY RISKS POSED BY**	***Dr. Diana Bowman*** *is a postdoctoral research fellow in*

	NANOTECHNOLOGIES *(Diana Bowman, Monash University)* Dr. Bowman will examine how some nanotechnologies are currently being regulated, and the adequacy of these regimes for managing the potential risks posed by the technology. The focus of her presentation will be on the use of nanotechnologies within the industrial chemicals and cosmetics sectors, and the use of nanotechnologies in human therapeutic implants. Benefits, risks and regulatory challenges will be explored in relation to these three areas.	*the Monash Centre for Regulatory Studies, Faculty of Law, Monash University, AUSTRALIA*
15:30 – 15:50	COFFEE BREAK	
	PARTICIPANTS' PRESENTATIONS PART II ***(CHAIR: CLAUDIA DIAZ)***	
15:50 – 16:10	eHealth, Patient Empowerment and Health Identities	*Els Soenens (VUB)*
16:10 – 16:20	*Discussant: Griet Verhenneman*	
16:20 – 16:40	The individual's guide to the galaxy of ICT implants: the sundown of data protection?	*Eleni Kosta (ICRI - K.U.Leuven)*
16:40 – 16:50	*Discussant: Els Soenens*	
16:50 – 17:10	Cross-context Identity Management in e-Health	*Mina Deng (COSIC - K.U.Leuven)*
17:10 – 17:20	*Discussant: Eleni Kosta*	
17:20 – 17:40	Possibilistic Disclosure Attacks in Polynomial Time	*Stefan Berthold (T.U.Dresden)*
17:40 – 17:50	*Discussant: Matthias Kirchner*	
20:00	DINNER	

Wednesday, June 18th

09:30 – 11:00	**Keynote Speech: THE SOCIAL WEB AND COMMUNITIES OF USE IN THE DOMAIN OF HEALTH AND SOCIAL CARE: NOVEL ETHICAL, LEGAL AND SECURITY CHALLENGES** *(Manolis Tsiknakis - FORTH)* Dr. Tsiknakis will discuss the types of virtual communities (classified by the intended members, i.e. health care providers, researchers, patients and caregivers) and attempt to identify the various ethical and legal challenges associated with this concept.	***Dr. Manolis Tsiknakis** is Head of the Centre for eHealth Technologies of the Biomedical Informatics Laboratory of the Foundation for Research and Technology Hellas (FORTH), GREECE*

11:00 – 11:30	COFFEE BREAK	
11:30 – 13:00	**INTERACTIVE TASK: INTRODUCTION TO THE INTERACTIVE TASK AND FORMING OF DISCUSSION GROUPS** *(Mark Gasson)* Three discussion groups will be formed, each working on assigned tasks that are relevant to the subject of the event. The groups will be asked to conclude their results in a short presentation to be held on Friday afternoon.	
13:00 – 14:00	LUNCH	
14:00 – 15:15	**Keynote Speech: INTRIGUING APPLICATIONS OF POST-GENOMIC RESEARCH** *(Dimitris Kafetzopoulos - FORTH)* The completion of the various genome projects has sparked the development of new powerful technologies and methods which allow the comprehensive and quantitative analysis of complex biological systems and which, in their turn, have revolutionised biological research. Keeping pace with the fast developments in the field of post-genomic research we guide our research activities towards two main goals: The deployment of post-genomic technologies for achieving 'systems biology' approaches and the development of a biomedical informatics infrastructure for facilitating medical knowledge discovery and sharing of clinico-genomic data.	***Dr. Dimitris Kafetzopoulos** is Group Leader at the Institute of Molecular Biology and Biotechnology (IMBB) of the Foundation for Research and Technology Hellas (FORTH), GREECE*
15:30 – 20:00	Social Event: Excursion to Knossos	
20:00	DINNER	

Thursday, June 19th

9:30 – 10:30	**Keynote speech: SECURITY AND PRIVACY IN A NETWORKED AND MOBILE WORLD** *(Sotiris Ioannidis, FORTH)* Ubiquitous networking and device mobility is changing the threat landscape that users have to face. The move from office space to open space, from sometimes connected to always connected, and the merging of physical and virtual identities, is leaving users more vulnerable than ever. In this talk I will be discussing some of the existing and emerging threats that such environments must face.	***Dr. Sotiris Ioannidis** is an Associate Researcher at the Institute of Computer Science (ICS) of the Foundation for Research and Technology Hellas (FORTH), GREECE*
	PARTICIPANTS' PRESENTATIONS PART III *(CHAIR: MARGHERITA BACIGALUPO)*	
10:30 – 10:50	Cameras in Your Living room, The Next Step in eHomecare?	*Griet Verhenneman (ICRI - K.U.Leuven)*

10:50 – 11:00	*Discussant: Mina Deng*	
11:00 – 11:30	COFFEE BREAK	
11:30 – 11:50	Privacy Consideration on SIP-based Mobile Payment Application	*Ge Zhang (KAU)*
11:50 – 12:00	*Discussant: Thomas Gloe*	
12:00 – 12:20	Source Identification of Scanned Images using Spatial Sensor Noise	*Thomas Gloe (T.U.Dresden)*
12:20 – 12:30	*Discussant: Ge Zhang*	
12:30 – 12:50	Fast and Reliable Resampling Detection by Analysis of Fixed Linear Predictor Residue	*Matthias Kirchner (T.U.Dresden)*
12:50 – 13:00	*Discussant: Stefan Berthold*	
13:00 – 14:00	LUNCH	
14:00 – 15:30	**Keynote speech: DATA PROTECTION, INTELLECTUAL PROPERTY AND WORKING WITH GENETIC DATA: A NIGHTMARE?** *(Nikolaus Forgó, IRI – University of Hannover)*	***Prof Nikolaus Forgó** is Professor of Law at the Leibniz University of Hannover, GERMANY*
	This presentation will deal with the regulatory field governing European transnational research in genetic medical data. Special attention will be given to data protection issues. In an outlook he will argue that underestimated challenges are to be found in the field of intellectual property. Prof. Forgó's major showcase will be the European project ACGT (www.eu-acgt.org) where most of their insights are practically tested at the moment.	
15:30 – 16:00	COFFEE BREAK	
16:00 – 18:30	**INTERACTIVE TASK II: CONTINUED ACTIVITIES OF THE DISCUSSION GROUPS**	
20:00	DINNER	

Friday, June 20th

9:30 – 11:00	**Keynote speech: PRIVACY PROTECTION AND DATA SECURITY** *(Brecht Claerhout, Custodix)*	***Brecht Claerhout** is an Electronics Engineer, working for Custodix in BELGIUM*
	The ACGT project aims to develop a Biomedical GRID infrastructure for sharing Clinical and Genomic expertise to ensure faster diagnosis and more efficient therapy (prevention and treatment). Privacy and	

	security issues when collecting, storing and processing medical data are numerous. This presentation shows how they are tackled within the project and which solutions are used beyond that.
11:00 – 11:30	COFFEE BREAK
11:30 – 13:00	**INTERACTIVE TASK III: GROUP PRESENTATIONS AND DISCUSSION**
13:00 – 14:00	LUNCH
14:00 – 15:30	DISCUSSION TIME, WRAP-UP & EVALUATION
	Inevitably, time for discussion during the event slots will be readily consumed, and so time is allocated here to continue discussion and debate from earlier sessions. A questionnaire will also be completed by each participant to gauge the success of the event.
15:30 – 15:50	FAREWELL COFFEE

Annex 2: List of Participants

Below is given a full list of participants from the FIDIS DC event. In all 19 people were actively involved with the event, representing 7 countries.

Participant	Organisation	
Eleni Kosta	ICRI - K.U.Leuven	Belgium
Claudia Diaz	COSIC - K.U.Leuven	Belgium
Griet Verhenneman	ICRI - K.U.Leuven	Belgium
Mina Deng	COSIC - K.U.Leuven	Belgium
Hans Hedbom	KAU	Sweden
Ge Zhang	KAU	Sweden
Stefanie Pötzsch	T.U.Dresden	Germany
Thomas Gloe	T.U.Dresden	Germany
Matthias Kirchner	T.U.Dresden	Germany
Stefan Berthold	T.U.Dresden	Germany
Margherita Bacigalupo	IPTS	Spain
Els Soenens	VUB	Belgium
Mark Gasson	University of Reading	UK
Nikolaus Forgo	University of Hannover	Germany
Diana Bowman	Monash University	Australia
Manolis Tsiknakis	ICS FORTH	Greece
Dimitris Kafetzopoulos	IMBB FORTH	Greece
Sotiris Ioannidis	ICA FORTH	Greece
Brecht Claerhout	Custodix	Belgium

Annex 3: External Speaker Biographies

Dr Diana Bowman

Dr Diana Bowman is a postdoctoral research fellow in the Monash Centre for Regulatory Studies, Faculty of Law, Monash University, and a Visiting Fellow in the Institute for Energy and Environmental Law, Faculty of Law, KU Leuven (Belgium). She is also a member of the editorial board of Nanotechnology Law & Business, and an associate of Nanotechnology Victoria. Having received her LLB and BSc (Physiology) from Monash University, Diana completed a PhD in Law in 2007. Her thesis, 'A Small Matter of Regulation', examined the emerging issue of nanotechnology regulation within the national and international contexts. As part of her research, Diana undertook an internship with Lux Research Inc, a US-based technology consulting firm.

Diana's research focuses primarily on regulatory and policy issues related to nanotechnology and other new technologies. Diana also researches and publishes in the areas of research including utility regulation, public and private sector corruption, public-private partnerships and public accountability.

Brecht Claerhout

Mr. Claerhout is an Electronics Engineer by education, but has been involved in (Open Source) security software development while studying at the Ghent University. He started his professional career as researcher at IMEC. Before joining Custodix, he was employed by RAMIT (Research in Advanced Medical Informatics and Telematics) for PKI and smartcard implementations in the scope of the European Trusthealth II project (IST). While working at Custodix, Brecht has been and still is involved in a number of research projects focusing on privacy and security in the healthcare environment, as for example: PRIDEH-GEN (EU-IST-2001-38719) concerning privacy protection of genetic information, COPLINTHO (Flanders-IWT) dealing with Service Oriented Architectures in healthcare and more recently the ACGT (Advanced Clinico-Genomic Trials on Cancer) Integrated Project. Brecht has further advised the Belgian Telematics Commission (Ministry of Health) on several security subjects; and has been acting as a guest speaker at Ghent University. Brecht has published several conference and journal papers on the subject of security and privacy protection. He is also co-founder of the "Center for Data Protection" non-profit organization.

Prof. Nikolaus Forgó

Prof. Nikolaus Forgó is Professor of Law at the Leibniz University of Hannover (www.jura.uni-hannover.de) and since 2007 he has been acting as the director of the Institute for Legal Informatics there (www.iri.uni-hannover.de). From 1990-2000 he worked as an assistant at the law school of the University of Vienna and was inter alia responsible for the ICT-infrastructure there. In 1998 he founded a postgraduate-program (www.informationsrecht.at) on ICT-law in Vienna and has been the head of this program since then. He has broad research, teaching and consulting experience in all fields of ICT-law, mainly in data protection, copyright and electronic contracts.

Dr. Sotiris Ioannidis

Dr. Sotiris Ioannidis obtained his PhD from the University of Pennsylvania (Philadelphia) and is currently an associate researcher at the Institute of Computer Science of the Foundation of Research and Technology Hellas (FORTH). His research interests include security policy, operating system and network security and privacy

Dr. Dimitris Kafetzopoulos

Dr. Dimitris Kafetzopoulos is group leader of the Institute of Molecular Biology and Biotechnology (IMBB) of the Institute of Computer Science of the Foundation of Research and Technology Hellas (FORTH)

Dr. Manolis Tsiknakis

Dr. Manolis Tsiknakis is Head of the Centre for eHealth Technologies of the Biomedical Informatics Laboratory of the Foundation for Research and Technology Hellas (FORTH). Dr Tsiknakis is involved in various European Projects in the field of eHealth and has been the author or many peer-reviewed articles. His research interests lie with Intelligent Health Information Integration, Medical Informatics and eHealth, Distributed Architectures for Health Information Networks, HealthGRIDs, Component-based Software Engineering, Socio-economic Assessment of Health Telematics and eHealth services, Information Society related issues etc.

Annex 4: Interactive Task

Groups:

A. Eleni Kosta (K.U.Leuven), Hans Hedbom (KAU), Matthias Kirchner (T.U.Dresden)

B. Griet Verhenneman (K.U.Leuven), Ge Zhang (KAU), Thomas Gloe (T.U.Dresden), Els Soenens (VUB)

C. Mina Deng (K.U.Leuven), Stefan Berthold (T.U.Dresden), Stefanie Pötzsch (T.U.Dresden)

Tasks:

1. Do (combinations of) emerging technologies introduce new privacy issues? Should we be prospective, and if so what steps (legal, technical, etc) can we / should we take?

2. The legal, ethical, and policy issues surrounding personal *sous*veillance are largely yet-to-be-explored, but it has been argued that there are close parallels to the social and legal norms surrounding recording of telephone conversations. Discuss this and the wider privacy concerns.

3. When the effort falls low enough, personal experience capture can be done without conscious thought or effort, wherein the person capturing the information becomes a "cyborg". Discuss this idea based on the technological possibilities and their impact in the next 20 years.

4. 'Mindball' fails to exploit the potential of 'brain interfaces' for entertainment. Given the limitations, devise a realistic entertainment product which incorporates this technology to maximum effect.