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Editors

Human ICT Implants: Technical, Legal and Ethical Considerations

T · M · C · A S S E R P R E S S

 Springer

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Foreword

In March 2005, the European Group on Ethics in Science and New Technologies (EGE) to the European Commission, of which I was a member, issued an Opinion on “Ethical aspects of ICT implants in the human body” (EGE 2005). Since then many new, and in many cases exciting, developments in digital technology have taken place. These include, for example, affective computing, ambient intelligence, bioelectronics, cloud computing, neuro-electronics, future internet, artificial intelligence, human-machine symbiosis, quantum computing, robotics, and augmented reality. These advancements have given rise to further ethical and legal debates, especially in Europe (ETICA 2011). Concerns about human dignity, freedom, privacy, and data protection, freedom of research, identity and personality, autonomy and informed consent are no less important than questions of justice (fairness, equality, and solidarity) particularly regarding consumer protection, improvement and protection of health, as well as the application of the principles of proportionality, transparency, and precaution. In their “Ethical Evaluation” (Nagenborg and Capurro 2011, 4.8.2.1) remarked that,

[I]n contrast to the possible use of ICT implants in AmI [Ambient Intelligence] [...] or in bio-electronics, neuro-electronic applications might raise greater ethical concerns, since neuro-electronics aims to provide a direct link between computer technology and the human brain as well as the nervous system in general. Especially the use of pre-conscious brain information-processing has to be seen as being in conflict with the protection of human dignity as highlighted in the “Ethical Analysis”. It has to be recognized that (medical applications of) neuro-electronics might also contribute to the welfare of human life and therefore foster human dignity.

This ethical ambivalence should not be understood as though technology were *per se* neutral and all we needed was to distinguish between so-called good or bad uses. From a more basic perspective, it can be stated that no technology is neutral insofar as it *changes* the horizon of options we have had so far. In this sense, thinking about technology means thinking about such changes in ourselves and of our selves. This is highly relevant when dealing with ICT implants in the human body. There is an underlying Cartesian dualism in this reasoning insofar as changes in the human body cannot be separated from the question about *who* we are, which is the ethical perspective. From a (medical-) technical perspective, the human body is an information-processing device similar

to other living systems that can be ‘repaired’ or even ‘enhanced’. But, in fact, *my* body concerns primarily *who* I am and not only *what* I am. Who am I? I am not an isolated subject, but a self in interrelations with other selves: Family, friends, colleagues, etc. with whom I share a world. Who I am is a question of the social “interplay” with others in the world (Eldred 2008).

Today, this interplay is cast and decisively shaped by digital technology. Until recently, it has been argued, we were “bodies in technology” (Ihde 2002); now “technics” is becoming “embodied” (Ihde 2010). Both issues concern ourselves—and not just our bodies—in the world. From a whoness-related ethical perspective, ICT implants are not ‘just’ in *the* human body but in *my* human body. My body cannot be isolated from my self or from my being-with-others in the world. Once we are aware of this existential foundation of technology in general and of ICT implants in particular, we are able to ask ethical questions as pertaining not to an anonymous human body but to a singular and irreducible ‘who’ facing her past, present and future life, taking her risks and responsibilities toward herself no less than toward others in a shared world. Some of these questions were raised by the EGE in 2005 and they are today, I think, as relevant as they were a few years ago:

How far can such implants be a threat to human autonomy, particularly when they are implanted in our brains? How far can such implants have irreversible impacts on the human body and/or on the human psyche and how can reversibility be preserved? [...] How far can ICT implants become a threat to privacy? [...] What lies behind the idea of an ‘enhanced’ human being? [...] How do we relate to persons with ICT implants that are connected online? How far should ICT implants remain invisible to an external observer? [...] How far can they be used in order to track human beings and in which cases should this be legally allowed? (EGE 2005, p. 24–25)

The EGE underscored that non-medical surveillance applications of human ICT implants “may only be permitted if the legislator considers that there is an urgent and justified necessity in a democratic society (Article 8 of the Human Rights Convention) and there are no less invasive methods.” (EGE 2005, p. 34) I think that, due to new technological developments, this recommendation is today even more crucial than it was in 2005.

The present volume offers up-to-date, multifaceted contributions on the technical, legal, and ethical debate around human ICT implants by well-known academic experts. This debate should become not only a matter of professional thinking of ethicists, computer scientists, lawyers, the IT industry and policy-makers but, above all, of personal thinking and decision-making in everyday life.

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Preface

This book would be but an idea without the generosity, commitment, and unwavering support of each of the contributing authors. As leaders in their respective fields, it is their insights, experience, and expertise that make this volume timely, thought provoking, and innovative. As the Editors of this book, we would like to express our appreciation to each of the contributors. The initial idea for the creation of this book was born from a report produced in the frame of the FP5 Network of Excellence ‘FIDIS’ (Future of Identity in the Information Society), and therefore, we would like to thank the partners of the FIDIS NoE. Special thanks go to Dr. Carmela Troncoso, Mr. Hans Hedbom, and Dr. Vassiliki Andronikou.

The Editors would also like to thank their respective universities, without whose support projects such as this one could not be undertaken, as well as their professional colleagues and their families. Each of the Editors brought their own skills to this book but both Eleni Kosta and Mark Gasson would particularly like to thank Diana Bowman for her enthusiasm in turning this project into reality. Finally, the series Editors, especially Franke van der Klaauw, and the staff at T.M.C. Asser Press deserve sincere thanks for their professionalism and their unstinting support.

February 2012

Dr. Mark Gasson
Dr. Eleni Kosta
Dr. Diana Bowman

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Abbreviations

AmI	Ambient intelligence
ATM	Automatic teller machine
BCI	Brain–computer interface
CAS	Court of Arbitration for Sport
DBS	Deep brain stimulation
EEG	Electroencephalogram
EGE	European Group on Ethics
EMGs	Electromyograms
EU	European Union
FDA	Food and drug administration
fMRI	Functional magnetic resonance imaging
HCI	Human–computer interface
ICD	Implanted cardiac defibrillator
ICT	Information and communication technologies
ID	Identification
IMDs	Implantable medical devices
KDD	Knowledge discovery in databases
LBS	Location-based services
LFPs	Local field potentials
MEMS	Micro electro-mechanical systems
NRA	National Rifles Association
OECD	Organisation for Economic Co-operation and Development
PD	Parkinson’s disease
PIN	Personal identification number
RF	Radio frequency
RFID	Radio frequency identification
STN	Sub-thalamic nucleus
TETs	Transparency enhancing tools

UDHR	Universal Declaration on Human Rights
UK	United Kingdom
US/USA	United States of America
VIP	Very important person