The ethics of microchipping and its implications for well-being

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Technology and Society

"How do we mediate between moving forward with technology and the societal consequences it may create; some of which are currently unpredictable?"

A bit of History

Ethics Group report on Science & New Technologies (European Commission)

➢ Communication and mechanisms for interacting - changes beyond recognition

➢ Continuing at accelerating pace

➢ Technology likely to impinge on us in both positive and negative ways

RFID

- RFID is increasingly making a significant contribution to our lives, in transport, health, retail, mobility and observation of patients suffering from Alzheimer's disease etc.

- Are we considering all the consequences?

Implants

➢ Injecting a chip – a radio frequency signal is transmitted to the transponder, the coil generates an electric current

➢ this electric current drives the silicon chip circuitry which transmits a 64 bit signal.

Implants

➤ First chip implant 1997 – Eduardo Kac – live performance in Sao Paulo

➤ Second 1998 – Kevin Warwick

➤ project Cyborg 2.0 – 2002 - Kevin Warwick

➤ Mark Gasson 2010 – infected implant with a virus – transferred to chip and security system wirelessly exchanged electronic data.

➤ Where is this all going?

Potential Risks and Challenges

➢ "our research shows that implantable technology has developed to the point where implants are capable of communicating, storing and manipulating data. This means that, like mainstream computers, **they can be infected by viruses** and technology will need to keep pace with this so that implants, including medical devices, can be safely used in the future".

Legislation

➢ The importance of protecting personal data is recognized in the EC Treaty (Article 16) and in the Charter of Fundamental Rights (Article 8).

➢ European legislative framework defined by the general Data Protection Directive and the ePrivacy Directive – they guarantee the protection of personal data, while taking account of innovations in data processing procedures.

Potential Risks and Challenges

➢ e-Health Action Plan 2012-2020 – in the *barriers to deployment of eHealth* "lack of legal clarity for health and wellbeing with mobile applications and the lack of transparency regarding the utilization of data collected by such applications."

Potential Risks and Challenges

➤ there appears to be a gap between the speed of technological advance and our understanding of its implications. "We're at the level of infants in moral responsibility, but with the technological capability of adults".

(Dr Bostrom)

➤ Possibility of reading personally linked information without consent

➤ Health risks

Ethical Issues

Issues of:

- Control
- Division of responsibilities
- Right or ability of individuals to exercise personal control
- Accountability
- Ownership
- Monopoly and power
- Privacy – (across cultural borders)
- Dealing with diversity
- Governance
- Health issues
- Sustainability/waste

The Future

➢ The importance of decision-making in the process of creation and development of new technologies is crucial

We need to consider:

➢ Standards

➢ Environmental and health issues

➢ Exposure to electromagnetic fields (EMFs) – levels of exposure the real danger?

Implantable Technology in the future?

> "Our next evolutionary step may well mean that we all become part machine as we look to enhance ourselves, either because it becomes as much of a social norm as say mobile phones, or because we'll be disadvantaged if we do not".

The Future?

➢ What is the Singularity (Ray Kurzweil) ?

    ➢ "a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed"

    ➢ The list of ways computers can now exceed human capabilities is rapidly growing

    ➢ "There will be no distinction, post-Singularity, between human and machine or between physical and virtual reality"

Future Implications

➢ The continual growth and development of new technologies without direct knowledge of future implications they might have on people, society, and the environment, is of increasing concern.
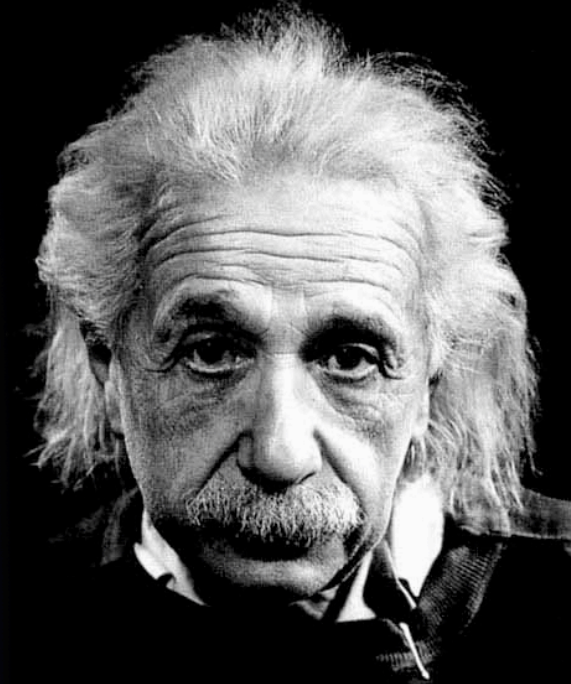
Future Implications

- Standards of professional competence, conduct and ethical practice should be maintained with regard to the development of these technologies to ensure the future well being for society especially with regard to technological advances in e-Health and healthcare systems.

'It takes a new way of thinking
to solve the problems
that we created by the old way
of thinking'

Albert Einstein