RECOGNISING ETHICAL ISSUES IN ICTs TARGETED AT THE ELDERLY
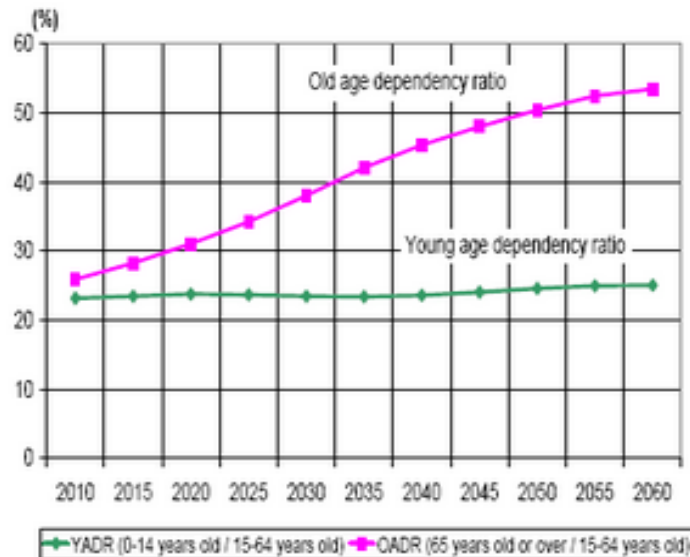
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Abstract

This paper looks at the significance of ICTs for the elderly population of Europe. It pays particular attention to some of the EU's ICT initiatives and discusses potential ethical issues that may arise within the ICTs. The paper argues that identifying potential ethical problems in ICTs targeted at the elderly is likely to make a fundamental difference to the lives of the elderly population. This is because identifying the potential ethical problems, especially at an earlier stage, helps developers, the users as well as carers and families to remedy potential problems as the ICTs are used. Lastly the paper discusses work that the Ethical Issues of Emerging ICT Applications (ETICA) project is undertaking in its mandate to identify future emerging technologies and their subsequent ethical issues.

Introduction

The current European population projection indicates that the population aged 65 years and older will increase from 17.1%, 84.6million in 2008 to 30%, 151.5million in 2060. Furthermore, the population aged 80 years or over is expected to rise from 21.8 million in 2008 to 61.4 million in 2060. In addition, the young-age-dependency ratio, which is the population aged below 15 and economically inactive is projected to rise minimally to 25% in 2060 when compared to the old-age-dependency ratio, which is the population of those aged 65 or more and economically inactive, to 53.5% in 2060 from the current 25.4% (European Commission, 2009). Such growth, particularly from a category of the population who are less likely to actively contribute to the economy is cause for concern due to the fact that there is likely to be more spending on healthcare, pensions and other social services. Such spending is expected to increase by 4-8% of the GDP with expenditure increasing to triple that of the current total expenditure (European Commission, 2007). Below is a Eurostat graph showing the population projection growth rate which gives an idea of the projected rate of growth of the elderly population.

(%)
60

Old age dependency ratio

50

40

30

Young age dependency ratio

20

10

0

2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060

YADR (0-14 years old / 15-64 years old)   OADR (65 years old or over / 15-64 years old)

Source: Eurostat, EUROPOP2008 convergence scenario

The ICT vision and expected areas of application

Understandably, the situation described above inevitably raises questions of how best to tackle the problem of an ageing elderly population. As part of a solution to the problem, Information and Communication Technologies (ICTs) are being seen as one of the ways to tackle the problem. This is mainly due to the fact that ICTs for all intents and purposes play a huge part in our daily lives. They play a massive role in our education, in our healthcare, in how we communicate and how we conduct business to mention a few. For this reason, the EU is keen to:

- get the elderly population involved and engaged with ICTs
- further understand how ICTs can contribute to the well being of the elderly through research and development
- get ICT developers to undertake the development of technologies that are targeted at the elderly and able to meet and improve their needs
- for the elderly population to be included in e-activities in order to ensure that they do not lag behind other citizens because doing so would create a further digital divide between the elderly and the rest of the population.

To ensure that the above goals become a reality, several initiatives have been put in place which have emanated from the EU's i2010 initiative[1]. The i2010 resolution points to the fact that ICTs

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[1] i2010 is the EU policy framework for the information society and media. It promotes the positive contribution that information and communication technologies (ICT) can make to the economy,

contribute to better quality of life and as such "the first initiative will be on caring for people in an ageing society addressing technologies for wellbeing, independent living and health."(European Commission 2005, 11). With this, programmes like the Ambient Assisted Living (AAL) programme has been put in place. AAL's main objective "is to enhance the quality of life of older people and strengthen the industrial base in Europe through the use of Information and Communication Technologies (ICT)"[2]. The programme is looking into ambient technologies that are able to improve the quality of life of the EU's aging population. The idea is that such technologies should be able to assist the elderly in their home environments. Ambient technologies are technologies that are integrated and embedded in a user's environment. They are responsive to a users needs, making them sensitive as well as intuitive. In addition, they allow for interactivity.

Another of the EU's programme is the Seventh Framework Programme (FP7) thematic area of ICTs which is tackling seven key ICT challenges. Of the seven, two are directly related to the elderly. Challenge 5 for instance whose theme is "Towards sustainable and personalised healthcare" calls for the development of technologies that will allow for "Continuous and personalised care solutions, addressing the participation of patients in care and prevention processes, and responding to the needs of elderly people." (European Commission 2009, 56). Within this category, is a call for the development of personal health systems (PHS) that are portable, wearable as well as implantable. The technologies are intended to help healthcare practitioners to be able to monitor their patients remotely as well as develop their knowledge of diagnostic data. In addition, Challenge 5 indicates that technologies developed in this area may include "minimally invasive systems and ICT-enabled artificial organs" (European Commission 2009, 57) that will help with managing disease remotely because of their potential to help with early diagnosis and treatment.

Technologies under Challenge 7 whose theme is "Independent living, Inclusion and Governance", focus on technologies that will allow the elderly to lead more independent lives in their own environments for as long as they possibly can. The technologies under this category are also aimed at encouraging citizens, the elderly included, to engage in the use of ICTs whether it to be able to communicate with friends and families or to keep abreast with events happening around them. Two objectives under this challenge, the ICT and Ageing objective, focuses on the development of service robotics. The aim is to have service robotics integrated into a user's environment with the ability to cater for the needs of the users. The service robotics will be adaptable to the requirement

of the user as well as support health carers. The other objective, the accessible and assistive ICT objective, touches on among other things, the need to develop non-invasive sensor and actuator concepts for brain/neuronal-computer interaction that will have the potential to restore failing human capabilities as well as disabilities. The technologies outlined above, whether already in existence or not all have the ability to improve the lives of the elderly as well as have a better impact on the cost of care which is expected to rise due to an ageing population. It is also interesting to note that the characteristics or nature of the technologies seem to be that they are embedded, able to be used remotely, can be wearable or implantable as well as be intuitive to a user's needs and within a users environment. These aspects raise ethical concerns and the question may be to what extent the potential ethical issues in ICTs targeted at the elderly population should be of concern. In addition, the concern may extend to the sort of ethical problems developers of ICTs as well as users should be aware of and whether this ought to matter when the potential impact is taken into consideration. It is important to point out that the programmes as well as ICTs initiatives alluded to in this paper are by no means exhaustive. They merely serve as examples of what we can expect from ICTs targeted at the elderly and are subsequently used to bring to the fore some of the ethical issues related to them. There of course exist other ICTs within and outside the EU ICT framework.

The ethical perspective

Ethics is about moral issues and values. It is about the principles as well as practices that are ascribed to in daily life. As Quinn (2006) suggests, ethics is "a rational examination into people's moral beliefs and behaviour" (p. 55). Because ICTs have become an intrinsic part of our everyday lives, ethical issues of ICTs will be about how ICTs have impacted our lives and with that the moral issues resulting or likely to result from the impact. In addition, ethical issues of ICTs will be about how ICTs are being used and whether the ways in which they are used uphold moral values. One would therefore expect that moral principles and values are reflected in ICTs, be it at the development and implementation stage right up to the time they are appropriated for use by the target audience, and in this case the elderly. This means that the technologies should be developed and used for the good of the intended user. As such, any technological developments need to take into account any potential difficulties that may arise during the course of the development of a technology as well as be able to identify potential ethical issues that are likely to arise when a technology is fully developed. Identifying such issues at an earlier stage in the development process is advantageous because improvements can be made to the development process. Ethical considerations will matter even more when a technology is targeted at a population that is for all intents and purposes more vulnerable than a younger population in its physicality, healthcare needs,

technology skills and know-how.

With the above in mind, it is important to consider the potential ethical issues in the technological initiatives like the AAL and programmes like the FP7 which have an interest in the development of ICTs for the elderly. Some of these ethical issues include the following:

Privacy

The embedded nature of ambient technologies might lead the user to have concerns for the loss of their privacy. Although the technologies help with monitoring of an elderly persons environment, particularly for those who need constant care, having technologies that are able to monitor one's surroundings might lead to feelings of loss of privacy. Users may feel uncomfortable surrounded by technologies that potentially monitor their every move and have their activities electronically transmitted to a remote location, no matter how unobtrusive the technologies might be. Bearing this mind, users concerns may be the degree with which they as users are able, if at all, to exercise their right to privacy particularly when it comes to the data; both audio and visual, that is captured within their own environment. Once electronic transmission is undertaken, such data is held in databases that may likely end up in the hands of unauthorised personnel, especially when not securely stored (Sembok, 2003). Furthermore, as the technologies may not only transmit patient data but also capture other objects within a user's environment, this may also constitute intrusion of one's privacy in surroundings that the user may not necessarily want other parties to be privy to.

Data protection

Although the technologies alluded to above promise to be able to assist the elderly in their home through monitoring them, Kort et al (2007) raise the issue of personal data. The point raised is the management of the amount of personal data collected when caring for the elderly. What happens to this data and to what extent are the elderly involved in the decisions made about how their data is stored, handled and by whom.

Consent

The elderly have different needs and require different levels of care. Some are more capable than others both in mental and physical terms. When considering how their data is captured and subsequently managed via ambient technologies for instance, informed consent also becomes an ethical issue that needs looking into. Friedman et al (2008) comment that "informed consent provides a critical protection for privacy, and supports other human values such as autonomy and trust" (p. 74). As such, the lack of informed consent on the part of the elderly in relation to data

collected about them has the potential to infringe on their right to privacy. In addition, it might also affect trust between them as users and other parties trusted to care for them. This aspect therefore needs to be acknowledged as well as factored into the development and use of technologies while bearing in mind a users mental and physical capabilities to provide informed consent. Questions such as who gives consent when an elderly person has mental difficulties also have to be taken into consideration.

Dignity

Taking into account the above, the issue of dignity is inevitably raised. Ignoring concerns of how user's data is managed, stored or used as a result of embedded or wearable technologies have a bearing on a user's dignity. Dignity should not only be expected in the physical sense such as when one is being looked after in a hospital for example, but should also be expected when dealing with data secured electronically.

Dependence

Is there a possibility of becoming too dependant on robotic service technologies when they become a constant feature in one's environment? Perhaps there is. The problem then lends itself to users expecting a technology to meet their every requirement even when they can do so on their own. In this case being too dependent on robotic services or other similar ICTs may be disadvantageous. Brey (2005) has observed that although technologies like ambient technologies have the capability to respond to human needs as well offer users the opportunity to be in direct control of their environment, users may become too dependent on the technology such that they may leave judgements and decisions up to ambient machines to act on. Brey has also observed that in the unlikely event that ambient technologies perform an unwanted activity, such activity may result in the infringement of a user's freedom and autonomy. The lesson is that technologies may not always work according to the way one wants them to work and as a result lead to undesirable consequences.

Isolation

Although technologies are meant to be inclusive, they are also likely to cause a divide which may lead to isolation for some users. This is likely to happen when there is less human/physical contact and more remote contact via ICTs. Elderly people, especially those needing care will sometimes prefer to be visited by a carer and not remotely monitored. Sometimes a visit from a carer is something people living own their own look forward to. Such physical contact may also help their recovery. Therefore, the introduction of technologies for the elderly, particularly in relation to their

care should not be a replacement for human care but merely a supplement.

Implants and wearable technologies

These might raise concern especially as they lend themselves to issues of tracking or surveillance. Although they are intended to monitor user's activities as an example, users themselves may not necessarily appreciate having to wear the technologies. In taking the example of a fall detector, Blythe et al (2005) have noted that although helpful, clients may not always want to wear such technologies. Wearable technologies may end up being viewed as intrusive and therefore a distraction to a user's way of life. This raises issues of freedom of choice but also that of protecting a potential user for their own safety. Reconciling the two may be a challenge because of a user's right to make their own choice but which may also affect their well being.

Although the issues outlined above may be cause for concern, it is equally important to acknowledge that the technologies also offer a sense of security for those being monitored because any changes that may be outside the norm may be easily detected and acted upon. This may improve the user's sense of safety and well-being of users. However, these advantages should not overlook the need to be aware of ethical issues in technologies. Admittedly, trying to identify ethical issues in present let along future technologies can be a challenge. The rate at which technologies and subsequent ethical issues arise has resulted in what Moor (2005) describes as policy vacuums because policies that ought to tackle the ethical problems in future and emerging technologies are a lot slower to implement when compared to the rate at which technologies are being developed. As a consequence, the ETICA project is looking to identify future and emerging technologies with the aim of identifying potential ethical problems early on.

The ETICA Project

ETICA has four investigative areas that it is looking at:

i. Emerging technologies,
ii. Emerging ethical is of emerging technologies,
iii. Governance issues of emerging technologies and
iv. Evaluation of ethical issues.

The idea is to be able to develop a matrix that will result in the identification of ethical issues that may result from technologies likely to materialize in the coming 10 to 15 years. This will be a novel way of dealing with ethical issues and ICTs because normally ethical issues in ICTs are only

identified when a technology has already been developed. In ETICA's case, the development of the matrix will subsequently highlight ethical problems that can be expected at the initial stage of a technology's development right up to the implementation and use stage. This knowledge will help to find solutions on how best to tackle the problem areas so that the likely emergent technologies have little to no ethical problems when they are in the hands of the user. ETICA will make recommendations to the European Commission on the likely ethical issues including how best to tackle the issues within EU ICT policy. ETICA is currently identifying potential future ICTs by looking at ICT research documentary reports from industry, research bodies as well as government among others. It will also look at current ICT projects being developed under the FP7. The project is also keen to involve citizens who are both already existing users of ICTs as well as those who are emerging. This will help the project gauge user's perceptions and views of ICTs and ethical issues. These will also form part of the policy recommendations to the EC.

Conclusion

This paper has given an outline of potential ICTs that are targeted at the elderly. The paper has shown some of the areas where the ICTs are likely to be applicable, which is mainly in the area of health. The purpose of the paper was to bring to the fore some potential ethical issues that may be evident in the ICTs outlined. Identifying the ethical issues is crucial if moral values and principles are to be upheld in developing and using ICTs. The paper has argued that it is important to be aware of ethical issues in ICTs because they might affect how ICTs are deployed as well as appropriated. Upholding privacy, dignity as well as trust is vital for users of ICTs, especially those whose use is tied in with healthcare such as the elderly. Aspects of ethical issues outlined in this paper are by no means exhaustive but merely serve as a reminder to uphold the ethics of ICTs and how if not upheld they might have an impact on data protection and consent among others. The paper has also introduced the ETICA project which has the mandate to look at ethical issues of future technologies. This is because identifying ethical issues at an earlier stage may offer protection against future unwanted problems of ICTs and these might impact on users, particularly the elderly population.

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