IDEGOV Project "IDEntification and GOVernance of emerging ethical issues in information systems" Theoretical ground Ethics Governance Recommendations

Kutoma Wakunuma Masclet Laurence Bernd Stahl Goujon Philippe Sara Wilford

Publication date:
2013

Document Version
Peer reviewed version

IDEGOV Project

"IDEntification and GOVernance of emerging ethical issues in information systems"

Final report

Theoretical ground
Ethics
Governance Recommendations

Authors

Kutoma Wakunuma
Masclet Laurence
Bernd Stahl
Goujon Philippe
Sara Wilford

2012

Executive Summary

This document presents research results on identification and governance of emerging ethical issues in information systems (IS). It gives a theoretical background which covers the grid of analysis used to determine the parameters by which the project analysed the interviews that informed the bulk of the findings presented. The document proceeds to touch on ethical theories and related hypotheses including the determination of the limits of existing ethical approaches. Following this is coverage of the data collection which includes the research approach that was planned. With this the document gives an overview of the research approach used to realise the results, these being a) survey questionnaires and b) in-depth interviews administered to Information Systems professionals and practitioners from across the globe. Questions used in both the questionnaires and interviews are given which mainly focus on perceptions and experiences of IS practitioners. The document covers the parameters of analysis used in the analysis of the findings. The parameters were used as a basis from which questions for the online survey questionnaire and in-depth interviews were constructed. These include technical contextualisation's in order to determine the current and emerging technologies in the field of IS, Ethical issue identification and specification, which was used to determine how ethical issues were determined among IS practitioners both in current and future ethical issues. In addition, the Ethical Approach parameter was also employed as a way of understanding the practitioner's ethical approaches, if any, to the use of both current and emerging technologies.

Reflexivity was also an important parameter because it availed the researcher's insight into when and at what stage(s) IS practitioners stand back and reflect on their actions as they do their work in order to determine whether they are doing it ethically or not. And if not, whether the measures they take to improve ethical concerns were sound and effective. Governance arrangements, the structures within which ethical issues are dealt with were also core parameters in the analysis. The final parameter was that of Implementation. This applied to the analysis of ethical actions and principles within the field of IS. It consisted of understanding what ethical actions were being implemented, by whom and at what levels. Bearing the aforementioned parameters in mind, some of the research results include the impact of current technologies on the individual, on culture and on organizations.

Also covered are the associated ethical issues of current technologies which encompass trust, social exclusion, privacy and surveillance, (un)freedom, misuse of technology and concern from the disgruntled among others. The document also lists identified emerging technologies which was mainly cloud computing as identified by the practitioners. This is then followed by an examination of associated ethical issues like loss of jobs, greater surveillance, security concerns as well as consideration of how issues can and should be addressed between different nation states when technology like cloud computing is hosted in one country but has clients in different countries.

An overview of the proposed solutions to address ethical concerns are also discussed, which included but were not limited to codes of conduct, technical solutions and education. This document has also identified ethical governance arrangements which identifies the governance policies IS organizations have in place, implementation of the governance policies and the practices engaged. In addition, the document gives a descriptive analysis of perceptions of emerging ethical issues from the stand point of IS practitioner views by:

- geographical location
- age

- field of expertise/industry
- gender

This is intended to show whether there are similarities or differences in these areas which may suggest patterns in relation to current and emerging technologies and associated ethical concerns. Lastly, the document lists recommendations for IS practitioners, policy makers and other parties who might find them useful.

Table of Contents

1. Introduction

1.1 Report Structure

The report begins with an introduction which covers the background of the project. This is followed by chapter 2 which outlines the methodology of the study. It includes a theoretical discussion which highlights the grid of analysis and ethical theories. The methodology also presents the data collection approach employed and also subsequently addresses the research plans that the study considered. Chapter 3 evaluates findings and advances a detailed discussion. This encompasses the parameters highlighting technical contextualization, ethical issues identification and specification, reflexivity and governance. It also includes a discussion on emerging ethical issues by categorization of geographical covering an international comparison of issues between developed, developing and emerging countries. This categorization also covers age, field of expertise and gender. A recap of interviews is undertaken in the preceding chapter 4 which mainly looks at what the interviews rely in summary and what can be learnt from them. Chapter 5 covers the presuppositions in ethical theories. This is followed by chapter 6 which presents on proposed solutions to ethical issues. A discussion is given in chapter 7 which pays particular attention to ethical implications in relation to IS and the 2020 enterprise. Further, this particular section evaluates what the implications are for future enterprises in light of potential ethical issues. Recommendations are then given in chapter 8 which covers recommendations grouped in four thematic areas including recommendations for policy makers, for organizations, for IS professionals as well as for IS professional bodies. The last section is the concluding chapter summarizing findings of the study.

1.2 Background

Information Systems (IS) are an integral part of everyday life where people including organisations use IS which encompass several networks to collect, process, create as well as use data to undertake a variety of activities such as efficient communication, business, health care, entertainment, education among others. It is a diverse field and this diversity renders it to have different definitions ranging from IS as encompassing information technologies, related infrastructure and IT enabled business solutions (Benbasat & Zmud, 2003); or IS as a work system that involves humans and machines to perform tasks using information technology (Alter, 2008) and IS seen as the use of information and communication technologies in organisations and society (Laudon & Laudon, 2008). IS' integral part in everyday life through use of information communication technology (ICT) enabled solutions means that the field has to keep abreast with the ever dynamic nature of technologies at the design stages, development process as well as through the implementation stages. In addition, to these processes, for the technologies to make a material difference in people's lives as well as businesses, the field has to be aware of the ethical issues that emerge as the technologies become mainstream. It is for this reason that the IDEGOV project whose partnership is composed of De Montfort University and NAMUR set out to identify ethical issues of emerging ICTs and their appropriate governance structures within the field of IS. Meeting this objective is important because as technologies emerge and are adopted so too are the likelihood of ethical concerns to emerge as well. Therefore, it is by understanding the ethical concerns that solutions to the challenges presented within the field of IS as the field adopts new and emerging technologies can be found.

The IDEGOV project will therefore be looking to specifically ***identify ethical issues of emerging ICTs and governance arrangements within the field of IS*** as the main aim and

objective of the study. The project builds on the findings of the EU research project, Ethical Issues of Emerging ICT Applications (ETICA) of which further details can be found at www.etica-project.eu and the Ethical GovernAnce of emergIng technologieS (EGAIS, www.egais-project.eu/) project which looked at ethical governance procedures in EU research projects. ETICA, which can largely be seen as a futuristic project whose intention was to provide a window into technologies that are likely to materialise in the immediate future of about 10 to 15 years identified some eleven technologies along with their associated ethical issues. The technologies were evaluated and ranked according to their material relevance and ethical wise according to their potential severity. These technologies were at a more general level and viewed as technologies likely to make a material impact on society in general. Where the IDEGOV project differs is in the area where it concentrates its research, that of the field of IS. As alluded to above, as new technologies are developed and appropriated in the field of IS, they are also likely to raise ethical concerns. The ethical concerns may be similar between the different technologies or they may also be different. This inevitably calls for new ways of dealing with the concerns particularly if the expected positive impact of the technologies are to be realised. So why should ethics matter in society in general and in the field of IS in particular? The answer lies in the fact that ethics is about morality which calls for knowing what is right and what is wrong in addition to Moor's (1985) assertion of being "concerned with "policy vacuums" and "conceptual muddles" regarding the social and ethical use of information technology". Following this, ethical issues in IS should matter because it will be about ensuring that emerging ICTs are being developed and intended to be used to advance a greater good so that the advances that come as a result of technology are used to advance and protect human values (Bynum, 1989). Furthermore, Gotterbarn (1991) adds that computing professionals involved with the design and development of computer artifacts should be concerned about professional ethics which encompasses good practice and codes of conduct for the professionals. This may however be lacking in the field of IS especially when ethics of emerging ICTs are taken into consideration. That is why although ethical issues of ICTs have been discussed before to include issues such as privacy (Tavani, 1999), surveillance (Lyon, 2001; 2002), trust (Dwyer, Hiltz & Passerini, 2007), authentication and access (Jones, Anton & Earp, 2007) and a few other, emerging technologies in the field of IS could potentially bring different ethical issues or indeed similar issues but in different contexts which could have an impact in the field and in other future enterprises. To this end in order to meet the:

Main aim and chief objective of the study which is to:
Identify ethical issues of emerging ICTs and governance arrangements within the field of IS, the IDEGOV project sought to meet the following

Scientific objectives:

- To determine an adequate grid of analysis related to emerging ethical issue determination
- To explore IS professionals' perceptions of emerging ethical issues
- To undertake an international and cross-cultural analysis of the particularities of ethics in IS
- To investigate current and emerging governance structures amenable to address these issues and determine pattern of ethical governance strategies
- To map actual current governance strategies to the existing literature models
- To determine limitation of the governance patterns determined
- To provide policy guidelines and recommendations for IS professionals, managers and other policy makers on how to address these issues.

2. Methodology

To realise the above objectives, the study had to determine the criteria of our research, the particularity of our approaches and justify it by looking at the insufficiencies of the ways technical projects are dealing with ethical issues, and how ethical theories are unable to make an impact on the field. To overcome the limits we see in both practices and ethical theories, we had to construct a strong theoretical background in the grid of analysis, to justify our point of view. After that, we have been able to construct a questionnaire and an interview schedule that reflect those theoretical points. After the interviews have been made, we have to look back at our theoretical analysis to compare the result of the interview with them, and see what emerge from the mixed approach. While De Montfort University (DMU) analyses the results of the interviews in detail, Namur focus on the governance side of the project: what are the criteria for the interviews and analysis, which theories are relevant to judge ethical behaviour, what model of governance are being used in the field, what is the level of reflexivity from the professionals, which resource of normativity do they use and so on. The answer to these questions will be directly connected to the insufficiencies we have seen in the current ways of doing ethics, to see if they show confluence. The aim of the project is giving recommendation and analysis on the identification and governance of Information Systems. For that, we have started with a grid of analysis, which gave us the epistemological and philosophical background that we needed in order to start the project on a solid basis. This grid of analysis has led us to a questionnaire.

This questionnaire used in the interviews is based on the more general and theoretical question shaped in the grid of analysis[1]. Then we analysed in Namur the interviews made by DMU with a focus on governance, and DMU analysed it in its generality, and its specific issues (genre, social media, etc.).

As such the analysis of the governance elements of the project took to meeting the following objectives related specifically to governance:

- Construct a grid of analysis with relevant criteria on how to judge the state of governance in field practice;
- Fully justify the criteria to be applied in the interview analyses;
- Construct questions that reflect those criteria and make the transition, in the questions, between theoretical question we need the answer of, to practical question, to be asked and understood by IS professionals;
- Do the reverse journey from the actual answer of the participant to elements that would answer our theoretical questions;
- Give governance advices to IS professionals;
- Justify the governance advice by a double analysis of the literature in governance and of a worldwide empirical enquiry about ethical practices and thinking in information systems;
- Give a comprehensive solution to limits in actual governance theories;
- Address the gap between governance theories and practice on the field;
- Analyse interviews with a focus on governance issues;
- Give the general trends of ethical behaviour and ethical thinking found in information systems professionals interviews, their presupposition and the limits of their conception;

[1] Masclet Laurence, Goujon, Philippe, IDEGOV D.1.1. *Grid of Analysis, 2011.*

- Make an original relation between the presuppositions we can find in the ethical theories and the presupposition we found in IS practice. That relation show that the limits in practice reflect the incapacity of the theories of norm construction to include the context of the discussion within the process of construction;
- Apply the analytical grid constructed in the first deliverable of the project.

In addition to the above, the following had to be addressed:

- Investigate current and emerging technologies in IS with a view to assessing their related emerging ethical issues
- Understand the perceptions of IS professionals on ethical issues
- Evaluate governance structures in IS that inform ethical solutions
- Understand policies in IS related to ethical issues solutions
- Consider suitable recommendations

To tackle these areas, the project decided to involve IS professionals from across the globe in the research process. These included practitioners from the following countries:

- Australia
- Canada
- China
- Finland
- Ghana
- Hungary
- India
- Malaysia
- Malta
- Nigeria
- Trinidad
- United Kingdom
- Zambia

In total 26 in-depth interviews were held lasting between 30 minutes to an hour. The professionals were asked to give their perceptions, opinions and experience on:

1. The current technologies they were using
2. Expected future and emerging technologies they were expecting to get involved with
3. The ethical concerns they were experiencing with the technologies they were using and how they were dealing with them
4. The ethical concerns they thought might be associated with future and emerging technologies and how they thought they might deal with them

IS professional involvement was crucial to the study because they are at the core of the research topic and their knowledge was valuable to the project. Their knowledge proved vital to informing the research results which are subsequently presented in the document. As alluded to above, two approaches were employed in getting IS professionals involved in the process. One was an online questionnaire survey approach which took about 5 minutes or under to complete and where IS research participants were asked to answer a cross section of questions. After the questionnaire survey, the participations were later interviewed in-depth

on the research topic (See questionnaire survey and interview schedule in the appendix 1). In addition, a detailed discussion of the research approach is given in the research process section.

The questions were especially tailored around the Grid of Analysis which is discussed in the section that follows and which was developed to analyse themes to meet the objectives of the project. The Grid of Analysis is also expanded in more detail in *Deliverable 1.1 Grid of Analysis* and encompasses the following parameters for analysis:

1. Technical contextualisation;
2. Ethical Issue Identification and Specification;
3. Futures Ethical Issues;
4. Ethical Approach;
5. Reflexivity;
6. Governance Arrangements;
7. Implementation

2.1 Theoretical background: Grid of analysis

The grid of analysis, made in the very first deliverable of the project, aims at giving criteria to the interviews and the analysis of the interview, in order for the interviews to be relevant to our theoretical aims. The point of view that justifies this approach is the classical way of doing science, which is to avoid ad hoc methods and unjustified statement. In other words, we could not start with interviews on the ground without being clear on our methods our aims, and moreover, the criteria under which we were going to analyse those interviews. Otherwise, those interviews would have been a pure matter of statement without scientific value. More than that, the interviews would not have existed, as it is the work on the criteria that gave us the relevant question to ask to the participant of the enquiry.

2.2 Relationship between every steps of the project

The relationship between the grid of analysis, the interviews, the analyses of the interviews, the maps of governance strategies and the governance advices is as followed:

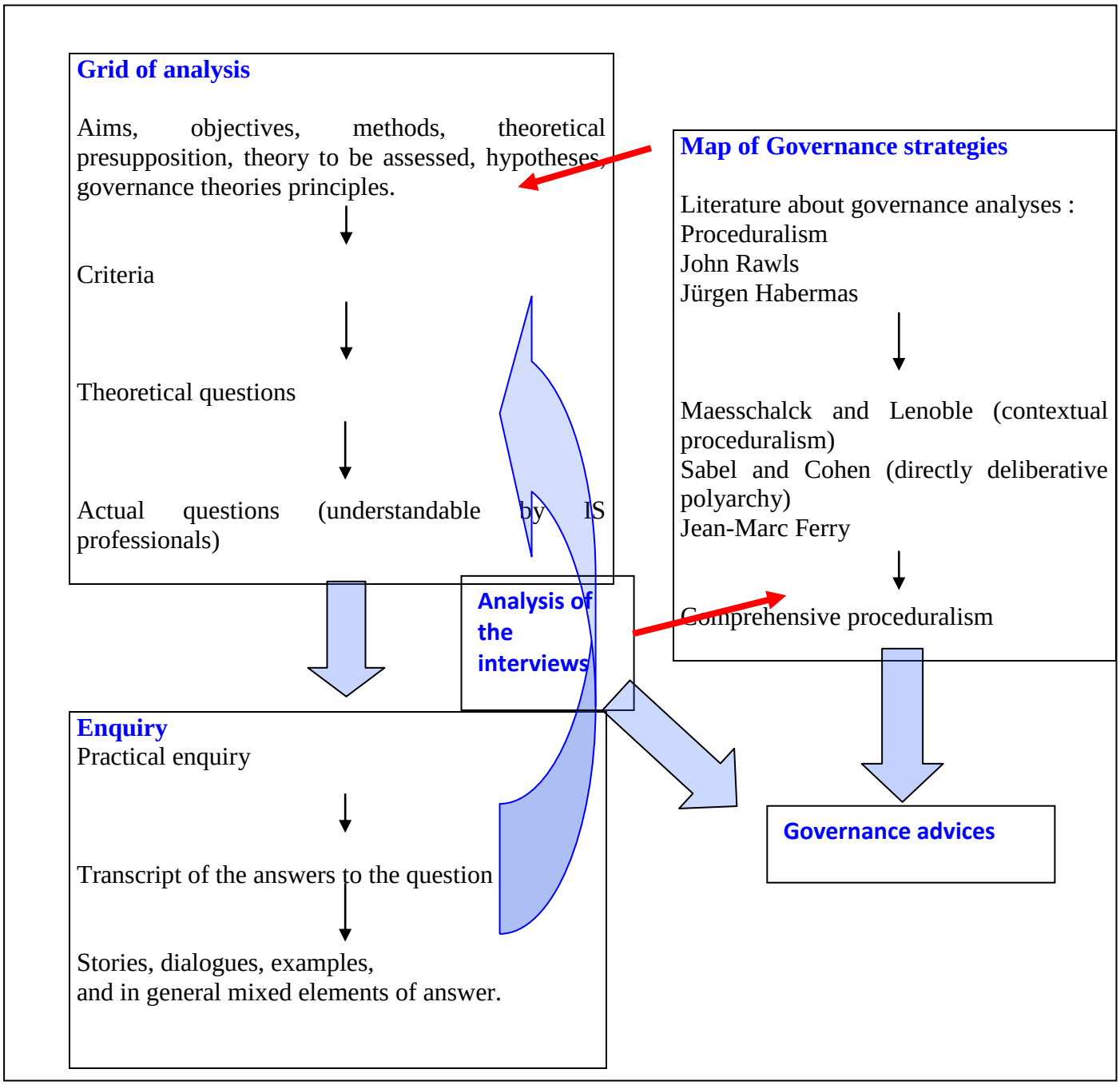


Figure 1. Schematisation of the project IDEGOV

We can see in this schema (*figure 1*) that every element of the project is connected, and ends to governance advice. The governance advice have two main sources that are combined: the analyses of the interview, and the mapping of governance strategies. This configuration reflects the will at the basis of this project of combining a top-down, theoretical approach, with a bottom-up, empirical approach.

We can also see that every step informs not only the next step, but has a retroactive impact on the precedent step. For example, the mapping of governance strategies, and the governance theory that comes from the analysis of the trend of proceduralism and the critique of its contemporary manifestation, informs the criteria at the basis of the interviews (first red arrow). And on reverse (second red arrow), the analysis of the interviews, that itself comes from the enquiry reflecting back on the criteria of analysis, informs the theory of governance. Indeed, without those feedback mechanisms, we would not have a fair balance between the empirical work and the theoretical work. The relationship between theory and practice has

always been a problem in governance theories, as we point out in our actual mapping of governance theories, the relationship between the construction of the norms and the application of the norm is often a very hierarchical, chronological relation, with very few feedback mechanisms.

The shape of the project itself is the reflection of the exigency to overcome this quite deficient relationship. Indeed, the problem at stake is not to come up with a new theory, or to have good interviews with nice example of governance behaviour. The aim of this project is to give well-informed governance advice for industries.

However, the all mechanism of the research cannot be taken as a simple tool to produce governance recommendation. If we were to take the governance advice without any of its justification, the governance advice would be meaningless, because it is strongly related to deficiencies, presuppositions, limits that we saw in current governance strategies and on current governance behaviour, and that we have tried to overcome by mixing theory and practice.

As we can see in the schema (figure 1) of the project, the grid of analysis starts by a clarification of the method and objective of the project, but also by the explanation of some theoretical context ('theories to be assessed'), and the discussion of our hypotheses. As we have already given the aims and the articulation of the project (here, very quickly: see deliverable 1.1. Grid of Analysis, for a complete explanation), we will just redefine rapidly the perspective, before entering the discussion on theory and their presupposition that informs the criteria (theory that we will find back on the mapping of governance strategies, because of the mechanisms of feedback that we have just mentioned.

2.3 Ethical theories and hypotheses

2.3.1 A meta-sectorial point of view

To construct our object of analysis, we have to determine the different kinds of ethical governance and reflexivity that are already present in the IS field. This is not an evaluation of the degree of reflexivity or "ethicity" of the current approach, but both a normative and an empirical approach to assess and determine the ethical issues, and how we can do it, and after a diagnosis of the limitations of the current approaches, the main issue is to overcome them, and give recommendations that are effective and possible to implement in the development of the IS field.

To reach our objectives, we will take a meta-sectorial point of view. The ethical issues often have very wide impact, and can often only be found by looking at the general context, instead of immerse ourselves into a particular framing. The meta-sectorial approach will allow us to "think outside the box", to take a reflexive point of view. A general approach will also allow us to compare different sectors, and the stories of IS professionals from different regions and different expertises, will help us to compare approaches, and to give recommendations that overcome the limitations of every framing, in order to reach effectiveness in the implementation of ethical norms in Information Systems.

Our approach is starting with a strong theoretical foundation. We want to avoid producing an ungrounded list of *ad hoc* treatments for an agglomeration of issues. We want to go deeper into the issues and develop an understanding of the conditions of those very issues. This is

the only way to avoid re-doing what has already been done in the existing codes of conducts at disposition of companies, and justifies the approach taken throughout this project of carefully constructing a means of understanding the conditions for ethical issue determination and resolution on a normative basis.

The importance of the normative perspective is that it entails a *governance approach*, rather than a *government mechanism*, so it seeks to deal with ethical issues as or before they arise in a principled manner rather than waiting until a problem surfaces and dealing with it in an *ad hoc* way.

Thus in this project, via interpreting results, we do not need to be tied to specific technologies or existing methods of ethical issue determination/addressing but we can rather construct from a normative perspective theoretically sound governance recommendations based in the overcoming of the limits of established approaches revealed by the analysis of empirical study. In this way we are not hostage to any particular framing or set of presuppositions as the normative approach is relevant whatever the context is. We develop, therefore, an approach based in an account of norms rather than a descriptive list based in empirical analysis. This is so as from no matter how long a list of exemplar cases, norms cannot be derived. 'Hume's guillotine' states that an 'ought' cannot be derived from an 'is', meaning matters of norms cannot be derived from matters of fact[2].

If we derive norms from fact, we would have an illegitimate process from an ethical point of view were we pile up empirical information and (statistically, maybe) prescribe or proscribe actions on that basis.

And as a consequence of our approach and its attempt to avoid ad hoc recommendations, we will not go deep on the technical details of IS, or into a particular sector within IS, because doing this is not necessary for the normative point of view, because the recommendation will be valuable for every field *because it is not ad hoc recommendation* (even if, of course, we will put some focus on IS, but this focus is just a focus, it does not determine our approach, and thus is not necessary –in the sense that not having that focus on IS would not destroy our theory; our recommendation would still be valid without the focus.

2.3.2 Conceptions of ethics

Ethics is meant to question the path of action before doing it, and so, is a field in the border of subjective existence and constraining externality. In addition to the definitions of ethics provided in the background section of this report, we can also look at Paul Ricoeur's well-known definition of ethics, which is broad enough to include a lot of conceptions into a teleological[3] conceptual framework: "ethics is the aim of a good life with and for others in just institutions"[4]. It is a theological framework, because it aims for social, collective and just way of living together in a "good life". If we transfer this definition into the cultural field, it legitimates every conception of the good life. There is a diversity of ethical demands that reflects an autonomisation of the action spheres in the social life and individuality sphere.

[2] David Hume *A Treatise on Human Nature*. See also on this: See Black, Max, "The Gap Between 'Is' and 'Should'", *The Philosophical Review*, Vol. 73, No. 2. (Apr., 1964), pp. 165-181.
[3] Not to be confused with theological, which refers to religion. Teleological in a very broad sense involves "aiming at goals". (*telos* in greek means purpose, end).
[4] Paul Ricoeur, ***Oneself as Another*** (trans. Kathleen Blamey), University of Chicago Press, 1992 (1990), p. 262.

These ethical responses to these demands align themselves according to the professional, social, and cultural contexts in which they are formulated and used.
There are a number of philosophical responses to the conception of ethics[5]:

1. Analytical: ethics is conceived as a theory of principles from which a preferable interaction can be formed (John Rawls). It responds to deontological preoccupations. It is a current that started in English speaking country, and is often opposed to "continental" philosophy. However, people like John Rawls and others have crossed those frontiers ;
2. Pragmatic: ethics is related to consensual procedures that allow the institution of common norms and their collective control (Jürgen Habermas), related to the choices of society and of ethical decisions in conflicting contexts. The pragmatism is a trend in ethics that is led by the British and American philosopher, which give the most importance to the effect of an action instead of to its justification, or, more precisely, which find the justification in the consequence of action, and not in its cause or principle;
3. Contextualist: ethics is a way to rationalise the values of a culture (Charles Taylor), and allows the formalisation of the normative pretension contained in cultural opinions. It is based on the manner in which the subject is holding his cultural area;
4. Semantico-symbolic: ethics is a disposition to respond to the absolution of freedom in relative acts (Paul Ricoeur), and is directly related to the subjective aspiration for the respect for human. Semantic-symbolic ethics tries to be the connection between human values, value of life and individual development to ethical construction, by thinking together the subjectivation process (by which an individual become a subject), and the historical development. This approach, in Ricoeur philosophy for instance is illustrated by the deep-rootedness of his thought and concept in the history of philosophy (via the mean of hermeneutics)[6].

Contemporary ethics is a very diverse field, with-in which the conception above cited are dominant trends. Those trends have various specificities. Analytical ethics (Rawls) and pragmatics ethics (Habermas) postulate a semantic indeterminacy. Semantic ethics (Ricoeur) find that the ethical question is not the legitimisation process of the norm, but the response to the injunction of the suffering of the others. Contextualist ethics (Taylor) propose a "realistic" ethics based on the way that the subject assumes its cultural space.

---

[5] As quoted by Maesschalck, "The last book of Enrique Dussel proposes an analytical landscape of the main tendencies of contemporary ethics and questions their negative relation to the material dimension of values." Dussel, E. *Ética de la liberación en la edad de la globalización y de la exclusion*, Madrid/Mexico, 1998. Maesschalck, M. *Norms et contextes*, OLMS, 2001.

6 cf. Fernando Landazuri, « Paul Ricœur : Soi-même comme un autre », Tables Rondes St Cyr, 2006. :
"La stratégie de Ricœur consiste très tôt en la reprise inlassable et toujours plus aiguisée de ce qui vient spécifier son entreprise herméneutique : il s'agira toujours et encore, d'" expliquer plus pour comprendre mieux ". Ricœur reprend à Dilthey l'opposition entre le registre explicatif, d'essence critique et objectivante, " mise en œuvre par les sciences sémio-linguistiques " (TR, Tome I, p. 11), causaliste tel qu'il est utilisé dans les " sciences de la nature " (sur le modèle de la physique), avec sa visée " véritative " (suivant l'expression proposée par Ricœur dans l'un de ses derniers ouvrages : " La mémoire, l'histoire, l'oubli ", 2000), et de l'autre le registre " compréhensif ", qui, lui, suppose un engagement existentiel ou existential d'une totalité à une autre totalité, et " relève d'une familiarité acquise avec la pratique langagière, tant poétique que narrative " (TR, T I, p. 11). Le maintien de cette option " dialectique " entre l'explicatif et le compréhensif est pour Ricœur la garantie afin d'éviter que le philosophe ne vienne s'enfermer dans sa tour d'ivoire spéculative (c'est le principal reproche qu'il fera en particulier à Heidegger), et s'attache à s'affronter aux problèmes concrets de son temps. »

Semantic-symbolic aims at being a link between ethical effort and life itself, by reconstructing the process of subjectivation to the injunction of historical reality. The problem with this approach and many others is the necessity of the willingness of the actor. They have to be disposed to give law to themselves. This presupposition is linked, in a simpler version to what we called the intentionalist presupposition, in which the norms effects are supposed to be deducible from the simple intention to adopt the norm. Additionally, there is the presupposition that the actors in a participatory approach will have capacity and intention to contribute to the participatory discussion[7]. This is also one of the biggest limits of proceduralism, as we will see later. The main challenge of ethics is in the confrontation between human behaviour and rational choice for the management of human responses[8].

The conclusion of this very quick insight of the contemporary ethical field is the following: if ethics is meant to have a normative authority –which it does as it is by its main characteristic about the relationship between what is and what should be - then it is necessary to question the condition of its effective integration in the context of technical projects. Ethics, as it aims at determining what "should be" and why, has to question the way that it is implemented nowadays in the technical project. Ethics cannot be used only as a tool. It has to reflect on its own application –and sometimes instrumentalisation. This is why we cannot go directly into the IS field. Ethics is reflexive and has to question the condition of its implementation in a field from a reflexive point of view. This is why implementation of ethics is such a complicated and difficult process: because it has to implement a reflexive habit that will be able to question its own implementation. The IDEGOV project by a focus on IS addresses this question and proposes an answer to it.

2.3.3 The trend of Proceduralism

As a philosophical approach, proceduralism is meant to be a solution to the diversity of values in the social field. Proceduralism is a philosophical trend that was born in the second part of the XXth century to avoid open conflict and reach political and social consensuses. By a focus on procedures, it is meant to allow people to reach agreement while keeping their own beliefs and values. Proceduralism includes the discursive theory of Jürgen Habermas and Karl Otto Apel but also liberal Anglo-Saxon philosopher like John Rawls. It assumes that, in a rational discussion that follows some rules, the best rational argument will succeed and reach a consensus. The particular set of rules vary from a philosopher to another in order to force people to adopt the rational point of view, but there is always procedures that will provide a frame to the discussion in order to reach an agreement that is rational and fair to everybody. Proceduralism is often thought as a solution to the contextual limits of other ethical theories. It appears as a sort of synthetic combination of requirements that are usually separate among two traditions of moral philosophy, which are the deontological and the teleological traditions.

Let us take the example of one of the most famous and influential representative of proceduralism: Jürgen Habermas. Habermas' Discourse Ethics[9] and especially the principles

[7] Cf. Table in the point 3.4.

[8] It's not only a challenge for ethics; the field of economy has deal with this problem since the creation of the field. The theory of rational choice, which is a reduction of human behaviour, has been made to overcome the problem, but, as a reduction, it does not actually overcome the confrontation, but only methodologically avoid it. That is of course another discussion, which do not have place in this work.

[9] Jürgen Habermas, *Erläuterungen zur Diskursethik* 1991

of Discussion and of Universalisation (Principle D and Principle U)[10], it is undeniably an original procedural combination of requirements. It combines criteria that are both deontological (criteria of universality and obligation) and teleological (criteria of ends and consequences). The strength of this procedural approach in ethics is that it provides a dialogical grounding of the moral rules, as opposed to the supposedly monological one in Kant's philosophy. It then links up the individual and the community's will, without supporting any substantial particular statement on the content of the moral rule or the ethical end.

The dialogism cannot be reduced to Habermas. It is a transversal paradigm which functions as a powerful influential framework. Thus, the dialogical paradigm gathers a great variety of authors and streams, forming an impressive set of dialogical sub-paradigms or models. This is quite obvious within the contemporary philosophy rooted in the 'Aristotelian' triptych (logic, dialectic and rhetoric)[11].

Of course, those authors mark some radical changes in the proceduralism. Many of them criticise strongly Habermas and the dialogical paradigm[12]. We cannot enter to the debate between every of the philosophers that stand around the dialogical paradigm. We see that it is become difficult to not refer to the proceduralism when philosophers want to talk about ethics, even if it is to criticize some of Habermas points. Dialogical proceduralism has become to some extent the ideological grounding of the social exchange in general and of the discursive exchange in particular. Many philosophers criticize the status of discussion in Habermas theory, saying that the ideal discussion could never be achieved, and that it is necessary to see why it is impossible. You will find below a table that classify some of the theories that influence proceduralism, and their main philosophical figure.

Despite the popularity of the trend, proceduralism suffers from some limits. The major one is probably about the context, and more precisely, the relationship between the rational justification of norms and the context of the application of norms. The relationship between norms and context is the key to our approach.

2.4 Determination of the limits of the existing ethical approaches: normative approach

Some of the current ethical theories reinforce the sectorialisation of ethics and sciences, by reinforcing a mechanism characteristic of modernity: the growing social differentiation[13].

[10] Jürgen Habermas, *The Theory of Communicative Action*, (transl. T. McCarthy) Cambridge, Polity, 1981.

[11] One can mention for instance the 'Dialogical logic' of Lorenzen and Mackenzie, the 'New Rhetoric' of Perelman or the 'New Dialectics' of Van Eemeren and Grootendorst. This is also the case in contemporary philosophy and human sciences, including Linguistics, Psychology, Sociology, or Anthropology. One can mention the critical rationalism of Popper, the phenomenology of communication of Lanigan, the polyphony of Bakhtine, the anthropology of communication of Winkin, the dialogical sociology of technology in Callon and Latour.

[12] Axel Honneth (Axel Honneth, *Struggle for Recognition*. *The Moral Grammar of Social Conflicts*, Polity Press, 1996), for example, based his approach on the struggle for recognition take the paradigm in another place. Pierre Bourdieu (Pierre Bourdieu, *Méditations pascaliennes*, Seuil, Paris, pp 81-82 ; pp 145-146) and Richard Rorty (See for example Rorty, R, *Philosophy and the Mirror of Nature*, Princeton, 1979) are also two of the most radical critics of Habermas, when they criticize the status of the "ideal speech" on Habermas theory, that let the question of implementation in the real world almost as difficult as if it didn't exist, which raise the question of the utility of the two-level construction.

[13] We refer here to the multiple subsystems of society such as justice systems, scientific systems, etc. as discussed by Niklas Luhmann in *Observations on Modernity*, (1998), Stanford University Press and *The Differentiation of Society*, (1982) Columbia University Press.

They are doing that by proposing an internal and specific framing to moral problems, which carry a risk of exclusion of alternative external framings. Those conceptions strengthen the exclusion of ethics in the technological development, which was already weakened by the lack of an assessment grid on the embedding of ethics in technological development. Ethics then become a sort of additional patch, used as a guarantee, and thus totally instrumentalised. The unique characteristics of ethics are denied. Both fields –ethics and science- have something to lose on that instrumentalisation, but society is the biggest loser, because ethics is not just a theoretical field, it aims at preventing and protecting society by looking at consequences, and having a general point a view that is missed by technicians and scientists, because of the very nature of their activity, i.e. the framing they necessarily have due to their objectives and their practices.

The reflexivity of the ethical approach is reduced to first-order reflexivity[14], i.e. a reflexivity that let its own framing unquestioned. The first-order reflexivity is not an absence of reflexivity, but a limited reflexivity, a reflexivity that comes from the framing itself and avoids asking questions on the framing. The novelty of modernity is to ask questions about itself, its objectives, its functioning (see the development of sociology and other human sciences), the side effect of its grow and functioning, and so on. This is what we call first-order reflexivity. The second-order reflexivity is a reflection on how society, and modern rationality in particular, work, and reflect on itself, and how those reflections can be limited by presupposition. Second-order reflexivity is not only a reflection on our own actions (as individual or as society), but a reflection on how the presupposition, the governance principles and the values determine our way of acting.

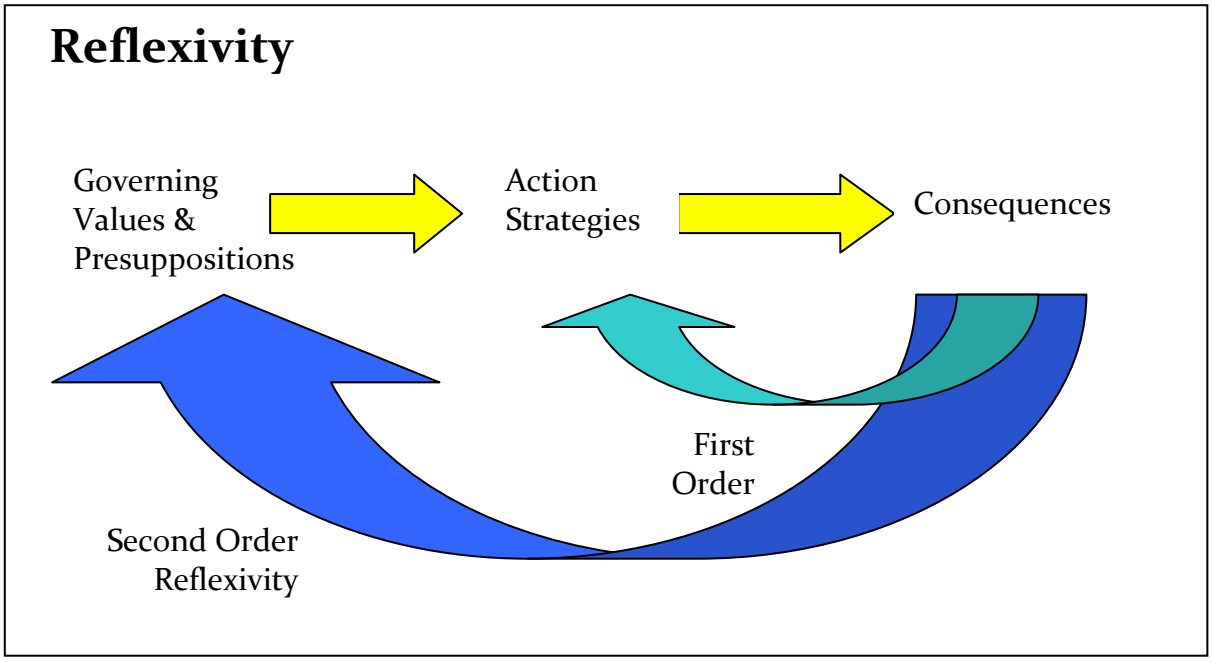


Figure 2. First and Second order Reflexivity, inspired by Argyris, Chris, 1993, Knowledge for Action: a Guide to Overcoming Barrier to Institutional Change, San Francisco: Jossey Bass.

[14] Cf. Hajer, Maarten, Wagenaar, Hendrik, (dir), Deliberative Policy Analysis, Understanding Governance in the Network Society, Cambridge University Press, 2003, p. 44-46.

Cf. Also Jan-Peter Voss, René Kemp, Reflexive Governance for Sustainable Development Incorporating feedback in social problem solving, Paper for ESEE Conference, June 14-17, 2005, Lisbon.

This analysis leads us to the following question: How can we elicit the opening up of the cognitive closure that seems to characterize most of the technological development, including the development of IS, in order to have a genuine ethical reflexivity (Second-order Reflexivity).

An issue is the construction of a reflexive governance process that integrates the possibility of learning through any technological development that will extend the view of every stakeholder, beyond the technical aspects of the questions. The integration of a learning mechanism is meant to open debates and raise questions regarding values. What is at stake is the growing of the capacitation of the actors. The capacitation[15] is the process by which the actor acquires a new capacity (in this case the capacity of being reflexive upon their own framing and the requirements for ethical reflexivity).

As a consequence of our precedent considerations, it seems obvious that a means to overcome the cognitive closure is to gather the now-separated communities of ethics and sciences. The shrinking of the border is a way to re-establish the relationship between the context and the construction of the norm.

This relationship is the heart of the problem when ethics leaves the abstract sphere to try to apply itself to a technical field. The lack of acknowledgment of the importance of the construction of the norm in relation to the condition of the application of the norm is the limitation of the current ethical approach.

Before that, we have to mention once again the work of the school of Louvain, which provides us the necessary theoretical background, with their theory of governance and their contextual pragmatism. We rely on their analysis on the question of the conditions for the effectiveness of the norm, and their rehabilitation of the importance of the context, in the pragmatic ethics, as well as their criticism of the current ethical review, that restricted ethics to a categorical field by the current pragmatic use of ad hoc answers to artificially isolated contexts, conditioned by the reigning instrumental rationality.

2.5 Criteria of the construction of our research object

From the precedent analysis, we are coming to the determination of the level of analysis of the analytical Grid. These levels of analysis will allow us to determine the level of analysis

[15] Capacitation: literally : The final stage in the maturation process of a spermatozoon. This takes place inside the genital tract as the sperm penetrates the ovum.
In philosophy, and in School of Louvain theory in particular, the term is used to describe the coming to capacity of an actor, the process by which the actor acquires a new capacity (here the second-order reflexivity, i.e. the capacity of being conscious and critical about his/ her own framing). The term is used to underline the process by which the actor gain the ability to do something, which is a bit different from the term "empowerment", which refers to a power that the actor already have in potentiality, and need to be reinforce or allow to be expressed.
For more details, please refer to:

- J. Lenoble & M. Maesschalck, *Toward a Theory of Governance: The Action of Norms*, Kluwer Law International, 2003.
- J. Lenoble & M. Maesschalck, *Beyond Neo-institutionalist and Pragmatic Approaches to Governance*, REFGOV, FP6, 2006.
- P. Coppens & J. Lenoble, *Démocratie et Procéduralisation du Droit*, Bruylant, Bruxelles, 2000.
- M. Maesschalck, *Normes et Contextes*, OLMS, 2001.

of the existing guideline and ethical behaviour in IS, and then, construct the grid of analysis, the questionnaire and the interview schedule.

At what level do we want to question IS professionals, and at what level are we going to analyze their answer? The level of analysis has to be the same as the level/ the parameters of the questions, because one determines the other, and the process has to remain coherent. Nevertheless, the question has to relay on other determinations, such as being understandable, and answerable by IS professionals. So if the questions reflect the parameters of analysis, it could not be a simple transcription. Hence the importance of determining clearly the level of analysis, to keep it in mind while asking questions, even if those questions have to be embedded in the concrete situation of IS professionals.

In order to avoid the trap of a too narrow framing –the framing is impossible to avoid in itself, the only response to it is to be aware of its level and power- and let open the possibility of novelty, the parameters of analysis has to be very broad. In that regard, the parameters are more a sort of general orientation for the questionnaire and the interview, which will allow us to class the answers, without giving them too much pre-established form.
The parameters of analysis are the following:

-Technical contextualisation;
-Ethical Issue Identification and Specification;
-Futures Ethical Issues;
-Ethical Approach;
-Reflexivity;
-Governance Arrangements;
-Implementation.

These parameters reflect the previous analysis and will allow us to assess and overcome the limitations of the ethical behaviours, framed by the actual ethical theories. If we have seen the limits of the currents approaches, in theory –limits of proceduralism- but also in practice –use of experts…- we have now to confront our considerations on the field. But the question has to be shaped in order to assess and resolve the issues we are interested in. That is why the parameters are so important: they will allow us to keep in mind, in the questionnaire and in the analysis the overall issues we have determined.

The parameters come directly from our previous consideration. We first have to collect some data on the technologies used by the Professional, to clarify the ethical issues they see on their project and they expect in the future. This first step is filled, in the parameters with the three first parameters: Technical contextualisation; Ethical Issue Identification and Specification; Futures Ethical Issues. This step of data collection is necessary to give us the context of the ethical thought of the participant. This is the step we call "Ethical issues determination".

The second step is to assess the ethical behaviour of the IS professionals: what ethical approach do they have? Do they reflect on their own action, on their own framing? Do they use in their company/project some governance arrangement, some kind of ethical assessment? How is ethics treated in their project? What effect does it have? This is reflected by the last four parameters: Ethical Approach; Reflexivity; Governance Arrangements; Implementation. This step is called "Procedure for identification and resolution".

Both steps will help us to come up with ethical recommendations. The parameters stay general in a way, because it cannot frame the answer of the participant too much, and more importantly, it has to be flexible enough in order to fill it with the content coming from the study. Those parameters are the basis of the questionnaire and of the interviews.

The parameters are the same for the questionnaire that aims at collecting qualitative data and the interviews that aims at collecting qualitative data, by recourse of discourse instead of quick questions, except for one kind of parameters, that we call "sociological" parameters.

In the interview schedule, we will add another step, preliminary to the steps we just described. This step is needed to take some sociological information from the participant, in order, for our study, to be more aware of the bias that may bring the participants, and to try to balance our group of participant in regard to their location (the study is worldwide) and gender. But that preliminary step has another aim. It is not only to be certain of the balance of the study, to assure scientificity of the study. It is to study also the influence of the localisation, of the culture and of the gender in the assessment of ethical issues. What can be a perfectly normal practice in Europe may appear unethical in Africa or India, and reverse. Beyond gender and cultures, we also want to have diversity in our study about the scale of the participant companies. This may affect the result of the ethical determination as well as the result of the identification of procedure for this ethical issues identification and procedure of resolution of those issues in the companies (which are the two steps we describe earlier). That first step is meant to give us information on the background of the participant. Then we will be able to take those backgrounds into account on the analysis of the procedure taken by the professional and by the company to assess the ethical issues and to resolve it. This is part of our will to take into account the context of construction of the norm, in its most concrete figure.

We now have to give a further explanation of the meaning, the structure and the justification of each parameter, except for the "additional" parameter on sociological information.

2.5.1 Ethical issue determination

-Technical contextualisation

This parameter is linked to the reflexivity parameter, in the sense that its aim is to give a picture of the IS professional and the company he/ she is working in, as well as a general state of the IS sector. It is very important in order to take into account the context of the conceptions of the participants and to comprehend the general situation of the field. Indeed, we have seen earlier that taking into account the context of construction and the context of application of the norm is one of the main challenges of our approach. That challenge reflect here, in the technical contextualisation, but not only, because it is of course the background of every of our parameters.

Before asking about ethical issues, we have to get a clear picture of the situation in the field, and the new challenge that are expected. After that only, we will be able to understand the ethical challenges that are linked with it. These parameters aims at showing t he involvement of the participant in his company, and of the company in the field. That will help us to describe the ethical issues present and future, even if they are not mentioned by the participants.

-Ethical Issue Identification and Specification

The overall goal of our project is the identification and governance of the ethical issues in IS. The questions have obviously to allow us to reach this goal. Question on the identification of

ethical issues are necessary. But this does not mean that we only have to ask IS professionals to identify ethical issues. We also have to question how they identify them; if and when did they witness one; how are ethical issues identified in project of new IS in general, and how do they determine the ethical issues they should look for, if they do. The issue here is not only the identification of the ethical issues, but also, and more importantly, the way of identifying them. In that regard, the aim of our project is not only to determine the ethical issues on the field of IS, but also determine how the field react to it, how IS professionals determine the ethical issues, and answer to it, and what presupposition and framing are at stake in their assessment of the ethical issues.

-Futures Ethical Issues

Our project aims at identifying future ethical issues. There is then a parameter that is linked to that orientation to the future. The future is impossible to predict, by definition. We have to find a way to ask the participant their own vision of the future of IS, and the issues that it will raise. The assessment of their own practice and theoretical view is important, but we have to address issues that have not appeared yet. Those issues will be found in the analysis of the answers of the participants, but it may be hidden, and will require the analysis of the entire questionnaire to be able to fully express an idea of what will arise as ethical issues in the next decade. The next step will then be to give a possible answer to it, before it arises, by governance recommendation.

2.5.2 Procedure for Identification and Resolution

-Ethical Approach

This level aims at determining the ethical approaches that are used in the IS field in general. In a sense, it is linked with the question of how ethical professionals identify the ethical issues, but adds another step, which is determining what ethical approach, theory and/or principles are used to do it. It is also not restraint to the identification of ethical issue, but concern the behaviour in IS in general, and what ethical principle it showed and is used – consciously or unconsciously. It is rare that professionals in other field than ethics –and even there- know what ethical approach they are using. But in our analysis, we have to find a way to understand their ethical background, by asking them about their reaction to ethical issues, and to any problem, and specifically about identifying, reflecting and responding to ethical issues.

-Reflexivity

Another important level of analysis is the level of reflexivity. We saw earlier that reflexivity was a fundamental characteristic of ethics. Being reflexive is, in general, being aware of the framing in which one evolves. There is different level of reflexivity, and also different definition[16]. But in general, being aware of its own presupposition and the presupposition of its field is the way to open the framing. The first-order reflexivity comes from the framing itself and avoids asking questions on the framing. The novelty of modernity is to ask questions about itself, its objectives, its functioning (see the development of sociology and other human sciences), the side effect of its grow and functioning, and so on. This is what we call first-order reflexivity. The second-order reflexivity is a reflection on how society, and modern rationality in particular, work, and reflect on itself, and how those reflections can be

[16] See for the difference between some definition of reflexivity, the Annexe VI and for a full definition From Jan-Peter Voss, René Kemp, Reflexive Governance for Sustainable Development Incorporating feedback in social problem solving, Paper for ESEE Conference, June 14-17, 2005, Lisbon, also used in Annexe VI.

limited by presupposition. Second-order reflexivity is not only a reflection on our own actions (as individual or as society), but a reflection on how the presupposition, the governance principles and the values determine our way of acting.

At what level are users and Information Systems Professionals reflexives on their own actions and work? Is there a manifestation of second-order reflexivity, which allows them to criticize their own framing? Is it just a first-level reflexivity, that allow them to criticize their action, and the way project work, but does not go up to criticize the presupposition that are present behind the problem in the field?

In order to assess the level of reflexivity, we have to determine if the actors only ask what the ethical issues are, or if they are concerned by the manner they can reflect on the process of determining the ethical issues. ("Do we need experts?", "Do we need ethical committees?", "Do we need an approach?" etc.)

Is there any ethical arrangement done by the actors to handle the process, in order to overcome the presupposition coming from their framing, such as seeing everything from one theory, or only by the scientific point of view?

We also have to look at the process of construction of an Information System in his different step. Is there questions about ethical consequences and governance arrangements at the very beginning of the project, at the stage of the idea for the new IS? Or do they treat the ethical issues as it arises from the development of the project and the application of IS in the company or to whoever is implied in it.

In that regard, we also have to assess if there is thinking about who is going to be touched by a particular IS, not only the costumer, but in the society in general. Is there an analysis of the potential impact of the project, and when is this analysis take place and by whom is t done?
We also need to assess how strong the governance mechanism are in real life situation, and if there is an assessment of the reflexivity of the different aspect of the project in IS.

-Governance Arrangements
The governance Arrangements level wish to determine what is already in place in the field of IS as governance tools and theory to deal with ethical issues.

a. Governance tools
There are several institutional arrangements that can be implemented into process of construction of new IS, and development of already existing IS, such as Ethical Committees, Focus groups, Ethical Expert Analysis, Hybrid Panels, etc. Those examples, described below, are used more or less often, depending on the projects and the field.

-*Ethical Committees*: A group of external expert that form a committee to "treat" the ethical issues in projects. These experts come usually from various disciplines, related at some point to IS or to specific field of application of the particular Information System at stake, but are rarely qualified as "ethicists" or have specific formation to address ethical issues.

-*Focus groups*: A focus group is a group of persons at whom the project is targeted, that discuss it with a moderator. The discussion between the stakeholders is recorded and afterwards analysed by specialists

-*Ethical Expert Analysis*: The project asks some experts to their opinions on potential and actual ethical issues. The experts give some sort of analysis on the project aims, target, effect, development, and so on.

-*Hybrid Panels*: Similar to an ethical committee, but with internal participants. This panel involves representative of every stakeholder to give their input into the ethical impact and governance processes to be used.

This list is not exhaustive, but is a good start to look at the solution already in place in IS project to address the ethical issues, and afterwards, to look at the limits of those solutions. But the group and committees in ethics are not fully responding to what we are asking. We now have to question the models of governance that are being used.

b. Models of governance

We have to conduct an analysis of governance models that embody approaches to constructing a norm. The various models represent the range of options available for policymakers in terms of constructing a norm.

There are four different types of Governance Models: the standard model, the consultation model, the revised standard model and the co-construction model[17].

-***Standard Model***: The standard Model is characterized by a priority in the normative discussion given to the expert. In case of disagreement between experts and public, the expert will always be listened and the public will always be accused of irrationality, and lack of knowledge. In this model, normativity is provided by well-trained experts, which are supposed to be able to pronounce themselves from the fact, objectively, whether than the values or emotion, which are attributed to the public. The public is considered irrational, untrustworthy, by its general lack of knowledge of the facts and of the theories, its cognitive bias, its lack of comprehension of the technical subject, its general aversion to novelty and risk, etc. So in this model context is presumed to be captured in a purely factual description and normativity is thought to emanate from expert knowledge that grants privileged access to the world of bare facts. This model fits perfectly into the classical distinctions between facts and values. Experts have an objective scientific approach to risk whereas the risks perceived by the public are marked by a greater degree of subjectivity. Several essential elements characterise the functioning of the first model:

- It is necessary to the purity of expertise by shunning the combination of the facts and value judgments. Expertise is independent from every influence, political, economic, or social.

[17] These models are developed on the basis of work carried out by Joly, P. B. (2007). "Scientific expertise in the Agora - Lessons from the French experience." Journal of Risk Research 10(7) : 905-924. and Callon Michel, Lascoumes Pierre, Barthe Yannick, , Agir dans un monde incertain. Essai sur la démocratie technique, Paris, Le Seuil (collection "La couleur des idées"), 2001ou encore Callon, M., *Des différentes formes de démocratie technique*, Annales des Mines, January 1998, pp 63-73. and for the same references related to governance model (standard models etc...) Joly, P.-B. (2001) Les OGM entre la science et le public? Quatre modèles pour la gouvernance de l'innovation et des risques, Economie Rurale, 266, pp. 11-29. They appear in the course of analysis in ETICA D4.1, pp15-19, as well as its sister project, EGAIS 2.1. p. 26-28 and 2.4. p. 20-24.

- Trust is the central element for the system to function, because is assure the delegation of decisions to institutions. Without trust, no institution could work. But trust has to be constructed. Different mechanism can contribute to the construction of trust. In this it is necessary to preserve the purity of expertise by not combining the facts and value judgements. Expertise is based on science and is independent from political, economic and social influence. In this model, it is considered that trust gives credibility to institutions and that it is better to contain problems rather than to draw attention to them
- The difference in perceptions between experts and the public can be reduced by means of education. It is supposed that people who have more advanced knowledge, especially in scientific disciplines, understand better and adopt experts' arguments. In this model, risk communication plays an important role. It is related to a one-way method of communication since the experts have little to learn from the public. The objective is to reassure the public to perceive the benefits concealed behind the risks

-***Consultation Model***: The Consultation Model responds to the standard Model, by including the public, in the sense that they are allowed a voice in matter where risk is perceived. Expert and laypeople, according to this model, are not different in term of knowledge or rationality, but only in their perception of risk. The public will ask broader and varied questions about risks involved with a particular technology or system, not theoretically, but because they are in contact with the real risk. There are three main elements that constitute this model:

1. Voluntary or involuntary exposure to risk. A risk taken voluntarily is more likely to be accepted. Conversely, an involuntary risk is less likely to be accepted.
2. The unknown character of risks. The risks which are invisible, unknown, or new, are less acceptable than those which are more familiar. Here the notion of uncertainty becomes central and opposes the notion of danger.
3. The number of people affected by risk. The risk which may affect only a small specific group is more likely to be accepted by the wider population.[18]

To establish trust the public needs to participate in the decision process. The opinion of the experts and the laypeople are valid, and can bring something to the discussion. Engaging the public in the process of the construction of the norm and on the debate about risk is the only way for the regulatory institutions to gain legitimacy. However, like the standard model, the model of consultation is conditioned by the positivist vision of science. In practice, there is a clear distinction between public opinion and the scientific opinion of experts. The public, still seen as irrational, is engaged only in risk management but not in risk definition.

The experts are the only ones who decide what risks need to be managed. This leads to a distinctive issue in the separation of the experts from the laypeople: since the public are seen as irrational, experts can choose to disregard their concerns, yet still claim legitimacy due to the fact that the consultation process has taken place. This is further complicated by potential biases and framings that the experts bring to the debate[19].

[18] To learn more about the evolution of the concept of risk in our society, read Beck Ulrich, Risk Society, Towards a new modernity, Sage publication, 1992. or Adam Barbara, Beck Ulrich, Van Loon, Joost, *the Risk Society and Beyond: Critical Issues for Social Theory*, Sage Publication, 2000.

[19] An example of a consultation model in action is the EU treatment of the Genetically Modified Organisms (GMOs) case, in which the government and scientific bodies wishing to introduce GMOs consulted the public, but dismissed their concerns as irrational. Society was seen as uneducated and ignorant about the science and benefits of GMOs, and so scientists, GMO companies, and the government moved to impose them on society.

-Revised Standard Model: If the Standard Model and the Consultation Model are based on the atomistic perception of society, the Revised Standard Model emphasized the interaction between the regulation process, social group and media. The previous models seed the public opinion as a data, the aggregation of individual opinion, and not as the result of a social confrontation and debate leading to a social production. In that regard the Standard Model and the Consultation Model omitted the question of the social construction of a problem.
In the Revised Standard Model, which is, as the name indicates, an extension of the Standard Model, the question of the social construction of the problems is faced up.

Breyer's model of the 'vicious circle of risk regulation' is a good illustration of this model.[20] For him, the legislative process is caught in a vicious circle with the source of the problem being the public attitude towards risk and uncertainty created by the media. Breyer claims that public perception of risk is usually inadequate. Risks are often overestimated; however the efforts to educate the public about scientific risks have failed and will fail in future. Consequently, responding to public attitude, legislature itself will exaggerate the risks and "[...] combined with an institutional inability to set detailed, scientific standards, will cause inconsistent, random, and often irrational ... lawmaking".[21] As a result, the public will feel unprotected by law and decision-makers, which will lead to more political pressure to take action.

In this model, public influence and participation in risk management are considered with great suspicion. In other words, the context is considered, but reduced to risk assessment according to the main framing. Accordingly, risk management includes the following elements:

1) Delegation of risk management to a competent and independent administrative body (in order to avoid the influence of media, pressure groups and politics)

2) Clear distinction between risk assessment and risk management.

3) Risk cannot be measured in an abstract way but rather analysed, comparing various action scenarios, respecting the general principle of coherence and introducing the economic dimension.

4) Trust is not connected with openness, but rather with reputation and competence.

This only caused further backlashes, which became more about the politics of the imposition than the science of the GMOs themselves. The ultimate failure of this introduction of GMOs led to the EU's reassessment of the use of purely scientific, economic, or political approaches, and to a higher degree of societal incorporation through inclusive participatory mechanisms. Cf. Goujon, P., & Dedeurwaerdere, T. (2009). Taking precaution beyond expert rule. Institutional design for collaborative governance. The Genetically Modified Organisms. *Proceedings of the ICT that Makes a Difference Conference, Brussels, November 2009.*

[20] Breyer, S. *Breaking the Vicious Circle*, Harvard University Press. Cambridge, MA (1993)

[21] Zubler, T. *Breaking the Vicious circle: Towards Effective Risk Regulation.* Book Review. Harvard Journal of Law & Technology 8 (1) (1994)

-Co-construction Model

The Co-construction model is the only model in which the way expertise is used is questioned. Instead of relying on expert approaches, several case studies are made to develop a representation of technology, and a democratic, participative approach is used to take both facts and values into account. This is a case of analytical rigour for the model, because only through the discussion of facts and values can the framing of the approach be validated. Instead of avoiding at all cost debates about these issues, debate and discussion are welcomed and encouraged.

This model builds on Latour's methodological approach[22], which represent a new sociology of sciences, questions traditional models of science. Latour blame the traditional conception of science that claimed itself as a revelation of universal, independent truths of the social system they produce, against which he states that society and science cannot be independent from each other.

In this model we see a more significant effort to establish a proper procedural method, not only in terms of the discussions carried out within the model but in the construction of the model itself. It is therefore a criticism of sound science, which 'melts' the analysis of risks in the preceding models, and which invites us to place it into a pragmatic perspective

The Co-construction model involves both policy-makers and stakeholders in the construction of the policies to be implemented (whether at government-level or on a much smaller scale). This methodology is commonly seen in policy-making at a government level where the decisions made will affect the private sector or special interest groups. In this model, both facts and values being taken into account, as underlined by Stirling[23], is not only a democratic matter; it is a matter of analytical rigor because it is the only way of treating these essential points seriously. If not, how can we criticise and validate the framing? Why hide and withdraw from the debate which will discuss what may eventually be changed?

It sounds obvious that the co-construction model is the one that seems to be the more able to give a complex representation of ethical issues that include every point of view. However, it still has some difficulties and limitation, beside the fact that it is, in reality, the less used by ethical reviews of technologies.

The point of describing these models is to show how much presuppositions are at stake at any decision. The people that thought on the standards in the research in IS make choices that are based on a conception of governance –along with other presupposition, like experience, value, prejudices… The form of the consultation and the very existence of the consultation process is a matter of presupposition, which always frame the decision.
Our question is: how could we open the frame a little bit to allow people to reach second order reflexivity, be conscious of their frame, and then, allow them to chose and correct that frame, chose other models, in order to be more ethical. Showing the possibilities in the models of participation and uses of expertise is one way to achieve that.

[22] Latour, B. (2003), Is re-modernization occurring - and if so, how to prove it? A commentary on Ulrich Beck. Theory, Culture & Society. 20 (1): 35-48.
[23] Stirling, A. *On science and precaution in the management of technological risk*. SPRU, Brighton, Report for ESTO, 56, 1999.

-Implementation

It is not sufficient to assess the preconception and presupposition at a theoretical level –even if those presuppositions are revelled by our empirical enquiry. The implementation of the norms, the models and the presupposition is very important to assess.

The implementation level is not the matter of the implementation of technologies, but the implementation of the ethical thought and principle that exist in the field of IS. Ethical thought are often already necessary in IS, but it very rarely touch the product itself. Sometimes, ethical thought looks more like sophism than real investigation. The companies have to think about the impact of their technologies, not only on their own company, but also in society. We have seen, in the chapter concerning the importance of ethics in IS, how important it can be for the enterprise to assess the reaction of the public to a technology or a system. This very study is a proof, if needed that companies cares more and more about the morality of their IS. But it is not enough to care, what we want to assess is if there is a real implementation of the ethical thought in the research, and how exactly this implementation work, at what extend has the ethical procedure an effect in real life. This is of course in order to improve that implementation, if it is possible.

As we state earlier, it is not enough to give input on the best way to treat the ethical issues with a theoretical point of view, and then try to apply that theory on the ground. Our approach is to take into account the problem of the implementation of ethical standards in the very process of creation of the norm. With this approach we will avoid the separation of the ethical theory from the field of application.

We can assess the impact of ethical reflection in IS at many levels:

-Did the initiator of the project undergo any ethical reflexivity?

-Did the project initiate or construct new governance arrangements (contracting ethical experts, appointing an ethical committee,…)

-Is there mention of ethical issues, which has been treated or avoided, or which could still happen (in case of misuse, for instance), in the description of the IS project?

-How did designers of the IS project describe their project to the firm and/or the public? Did they publish guideline or advice? Did they work with civil society, policy makers, industry, etc., to construct and communicate their project? (This refers to the governances arrangements we have seen above).

-Did they use ethical tools (value sensitive design, participatory technological assessment, etc.) effectively? Were the results of the tools taken into account at the technical implementation level?

-Did the project implement a learning process? This learning could be implemented at two levels. The first level is always present at some point in the project, because it comes for a part, from the development of the project itself. There is only a difference of degree from project to project. It refers to the fact that, as people change during the course of a project (whether due to the project itself or external influences), their framing change. This refers to the experience one gains while working on a project. This experience can come from the project itself, and the issues that arise in it, or from the people in it. This is why opting for collaborative work with different stakeholder is very rich for a project. The second way is more intentional: implementing some presentation of theoretical ethical way of thinking in the development of the project, to teach developers, and give them theoretical background to reach second-order reflexivity, or at least start a capacitation process.

-Did they test their project? Who were involved in that (these) test (s), and what did they do with the results? How did they assess the results? Did they ask for the opinion of the users, the ethical issues that could have been revealed, or did they only look at the numbers?

Assessment of ethical use and governance arrangements taken into project (if any) have to go through every level of analysis, to be sure that we do not miss any problem in the project and their implementation.

But if we will look carefully on the implementation process of new IS in reality, we have to think on how we will implement our own grid of analysis, to be able to reach the real-life problems. Reflexivity works in both direction, and we have to make clear on our own approach. We have given the criteria of analysis for the questionnaire in the section below. Now, we have to think on how those criteria, and the analytical grid will be used in the questionnaire.

So to resume, we have our parameters, classed in three "steps" : the sociological enquiry, that will help construct even more the context of the interview, the identification of the ethical issues, which construct a picture of the technical and ethical state of the field of IS, and give us information on futures challenges for that field, and after all, the governance and review aspect, that will give us information on the manner which the IS project assess their ethical issues, which theory are used, and by that, on the level of reflexivity and awareness of the participants. Here is every parameter:

1. Sociological information
2. Determination of ethical issues.
-Technical contextualisation
-Ethical Issue Identification and Specification
-Future ethical issues

3. Procedures for detection and resolution.
-Ethical approaches
-Reflexivity
-Governance Arrangements
    a. Governance tools
    b. Models of governance

-Implementation

2.6 Data Collection and Analysis from IS Professionals

2.6.1 Data Collection

As outlined in the above initial sections of the report, two approaches were used for data collection; questionnaire surveys and in-depth interviews. These were complementary to each other in the sense that the interviews complemented the questionnaire survey in more detail by drilling down to specifics on subjects raised in the survey. For example, a participant would have been asked to list the current technologies they were using in their organization in the questionnaire survey. During the interview, they would be asked to explain in more detail why they were using the particular technologies they had listed and/or whether they had thought of others.

2.6.2 Research Approach Plans

An invitation which was sent out to IS practitioners was constructed (see appendix 2) outlining what the project was about, why would-be participants were being approached and how they would inform the research. In addition, the invitation stated that the online questionnaire survey would be the first of a two part data collection strategy. The invitation stated that after completing the questionnaire which would take no more than 5 minutes, participants would be invited to take part in an in-depth interview where there would be a more detailed discussion arising from the questionnaire and other related topics. The respondents were informed that they had a choice of being interviewed either via Skype or telephone and that the interview would take no more than 30 minutes. It has to be said that some interviews stretched over 30 minutes, some lasting up to an hour.

It was always the aim of the project to have respondents from around the world. As highlighted above, this aim was realised with respondents coming from different IS organizations. Noticeably though, the sample of interviewees is roughly one interview per country except for the UK. This sample also includes scholars. The research team would have liked to have more participants in each country, approximately 10 participants from each continent, but as is the nature of research, circumstances beyond the control of the researchers such as the limited duration of the project did not allow for this. As was, part of the initial plan was that after the identification of participants, the interviews would be conducted before Christmas 2011, and completed by the end of January 2012. This meant that they had to be completed within a window of two months. This would of course have been undertaken after the selection of the desired interviewee respondents, whom, had the initial plan been successful, would have consisted of:

- 10 participants from each continent consisting of:
    - 2 Managers (can be 1 senior and 1 junior manager)
    - 2 Systems Analysts
    - 2 Technical Specialists
    - 2 Programmers
    - 2 Other IS workers which would have resulted in 50 participants altogether
- A good gender mix in order to understand whether gender plays a role in emerging technologies and ethical issues

As it happened, the above strategy did not go to plan. Firstly, participants were not easily available in the run-up to the festive period or immediately after, secondly the research team had to co-ordinate with the diaries of the interested participants and not those of the research team, and lastly, the desired 10 participations from each continent did not materialise. The last aspect was not particularly surprising because it was more an aspirational target than a real one. The idea was that if the research team could recruit 50 it would be a great achievement, otherwise half of the number or even slightly lower would still have been a good result. In any research, meeting a target number will always be a challenge even when one gets an iron clad agreement from a potential participant. Sometimes elements may be at odds that have a bearing on the actual realisation of the plans. Elements that include other work commitments on the part of the participants, differing diary days, illness, technology failure and many others can impact the plans and therefore have to be factored into the plans by the researchers.

As such, the research team had to go back to the drawing board because the two month window period planned to conduct the interview did not prove possible as interviewees were only available at different times of the research period. In addition, gaining access to interviewees around the globe proved an additional challenge, because the team had to rely on external parties to help recruit participants. On occasion this took longer than anticipated. As a result the interviews were continued up to the end of late May after which transcriptions of the recorded interviews had to done before the collation and analysing of the collected data could begin in earnest. In all, 26 interviews were conducted, which the team considered to be a success due to the detailed and in-depth qualitative approach that the interview technique permitted. In addition and as pointed out interviewees included scholars. The few scholars included were carefully selected due to their experience and contact within the IS professional field. These scholars would have worked in the IS field and also have an advising 'hat' in the field. As such, it made sense to include them in the research. We believe though that although the number of interviewees only accounted for 26 with roughly 1 interviewee per country, therefore giving an impression of a dispersed survey, the result seem to reflect a good picture of emerging ethical issues and governance arrangement in the field of IS, particularly when we for instance consider the literature in the field including the results of the ETICA project. In addition, the project has sought to give some form of an international comparison by giving an analysis of views by geographical location, specifically by categorizing the analysis into three groups, that of developing countries, developed countries and emerging countries in order to give a flavor of respondents views of emerging ethical issues of emerging ICTs in the field of IS.

As will be seen in the analysis focusing on geographical locality, the inclusion of different IS professionals from different geographical regions contributed to the understanding of different views of ethics within different contexts. In addition, the initial plan was that the IS organizations that would be part of the research process should fall into one or more of the following categories:

- Any organization with a dedicated information systems unit
- An organization specialising in information systems
- An information systems consulting firm which sells/outsources its services
- A Non-profit organization which may be a member of Institute for the Management of Information Systems (IMIS)

This aim was achieved in that participants came from philanthropic organizations, the education sector, military, banking and government among others. Furthermore, the plan was that participants could include managers, technical systems experts, decision makers, engineers and frontline staff involved in day to day information systems. This aspect was important because it would help gauge at what level ethical issues were deemed to be concerns, their knowledge of ethical issues and at what level they were dealt with. That is whether it was at managerial level, by technical systems experts, decision makers, engineers or frontline staff. Understanding this point helps build a picture of how seriously ethical issues are viewed and the likely impact they may have in the field of IS. It also helps to develop an understanding of the procedures used, if any, when dealing with ethical issues. Integrating the above considerations in the research process meant that the project

i. Had exposure to the right respondents
ii. Developed an understanding of what IS professionals consider to be emerging ethical issues in information systems and in what context

iii. Understood the measures IS professionals might consider relevant in dealing with ethical issues
iv. Could compare results geographically, organizationally, and with regards to age and gender
v. Could examine the impact of emerging technologies and ethical issues in IS
vi. Could evaluate cultural perspectives and perceptions if any in relation to emerging ethical issues in IS

Unfortunately, there was a gender imbalance in the participants with only 7 female as opposed to 19 male interviewees. This seems to be more the nature of the field than a recruiting difficulty. There was also an age imbalance, where around two thirds of the interviewees were over 50 years old. This was felt to be in part due to the seniority of many of the participants alongside the age of some of those who were utilising their contacts to assist the project.

3. Findings and Discussion

This section highlights the main findings of the study. It concentrates on aspects understood by the IS professionals interviewed to be issues or concerns in both current and emerging technologies. Further, it identifies their experiences of governance systems and aims to shed light on perceptions and awareness of these issues from the perspectives of personal and corporate ethics. Further, the findings consider several aspects of this by closer examination of sub-groups of interviewees, chiefly, age, country/region, gender, organization type and position. The findings will be discussed within the parameters of the grid of analysis evaluated above:

3.1 Technical contextualisation

3.1.1 Identified current and emerging technologies and associated ethical issues

Current Technologies

The current technologies identified by the interviewees were broadly similar, citing email, internet, mobile phones, ipad's and so on, as being in general use. However, there were some exceptions where specific technologies were used within organizations. The findings revealed that most organizations and individuals relied on Microsoft PC's; with none indicating that Apple Macs were in use by the organization although some private use was revealed. The Internet including wireless access was the most cited current technology in use, with most people using Laptops, servers and desktop computers to enable networking, storage and communication. Mobile technologies were the most used technologies in developing countries. 'Mobile ICT growth is especially pronounced in emerging and least developed countries' (Meso, Musa and Mbarika 2005 p.120)

The impact of current technologies

There has been a rapid development of technology over the last 20 years or so and there has been a huge impact on organizations and individuals in terms of usability speed of access and storage and 'the emergence of a wide variety of new technologies should give us a sense of urgency in thinking about the ethical (including social) implications of new technologies' (Moor 2006 p.111). Further, the drive towards continuous adoption of new technologies may be due to marketing pressures rather than an identified need and so it is also important to

consider ‘which kinds should we develop and keep? And, how should we utilize those that we do keep?’ (Moor 2006 p.111)

The drive towards the take-up of new technologies is potentially problematic for organizations who want to be seen to be at the cutting edge of the latest developments. Interviewees were aware that the impact of new technologies needs to be carefully considered despite pressures from people within the organization who look to acquiring the latest hardware or software “It’s not just how fast, or how big or how costly it is. There are other things that are important in life in the way in which we use technology” (025).

These concerns are also related to the public use of technology which has grown immensely and has led to several issues coming to the fore. There are significant vulnerabilities inherent in the use of many technologies. Such concerns are related to information sharing, surveillance, privacy, data protection and security. In cloud computing for example, there is a perceived loss of control of personal information that may be of concern in that whilst ‘the storage of customer data may be useful for operations and research but also opens the door for misuse and violation of privacy policy’ (Katzan 2010 p.5) can mean that individuals may find that they have little control of their information once it has been released to the cloud. In particular the ability of non-expert users to be aware of these potential problems and to have the ability and knowledge protect themselves and their data may become problematic. “It’s the proliferation into the more public environment which has made these things more vulnerable.” (013) As indicated above, education of the public about the potential pitfalls of the use of new technologies will help people to protect themselves more effectively.

Cultural Aspects

The impact of technology however is only just starting to be felt in some areas. This is not only related to different geographical cultures such as developing countries, but also relates to the internal cultures of both organizations and societies. When considering the approach to dealing with ethical concerns there is a need therefore for awareness that ‘An understanding of culture is important to the study of information technologies in that culture at various levels, including national, organizational, and group, can influence the successful implementation and use of information technology.’ (Leidner and Kayworth 2006 p.357). Even in developed countries there are significant groups of people who are only just beginning to embrace technologies such as the internet and many societies contain groups that are not as technologically adept as others.

Technological advances that are used by non-technical people can result in misuse, security vulnerabilities and loss of personal information and privacy. “We need to be aware of many differences there might be in the way males and females, or young and old, or whatever, people will come from different cultures and might actually be able to interact with the medium” (023).Therefore it is important to educate these groups about the possible dangers of the use of technology such as the internet as well as facilitating use.

In developing countries this is more noticeable as often they are only just starting to recognise the issues and the culture is less technologically developed. It was clear from the interviewees that whilst there were individuals in developing countries who were concerned about ethical issues within the use of current technologies, decision makers and policy makers are still slow to acknowledge the need to address them. ‘It still hasn’t sunk into the minds of business and management leaders’ (021)

Organizational Aspects

Technology has affected organizations in many ways. There is a potential to access resources and people that is greater than ever before, and IT offers businesses greater organizational control. (Stoodley et al 2010, Moor 2006, Collins 1992) However, these opportunities create potential problems for businesses too. Misuse (discussed below) is one concern, but also there are concerns about the use of technology to engage in employee surveillance or where the ability to work 24 hours a day either remotely or in the office can adversely affect the work life balance with overworked staff making costly mistakes or problems with employee relations.

> "I have heard of cases where managers give out laptops to their staff to say well, you can continue to working from home, and that's a major concern I think. They expect that after a full day's work, you should go home and carry on" (024).

Again, home-use policies are some of the ways that this can be addressed. However, working practices within organizations combined with concerns about job security may mean that people feel obliged to work longer hours even where a limited home-working policy is in place.

Another organizational aspect of current technologies is that development is on-going in that there are continually new and updated technologies that are perceived to be important to implement within organizations. This may create problems when an often piecemeal implementation of technology can lead to compatibility or usability problems that may mean that organizational use of technologies are not optimum. Further, as policies may be significantly behind use, there are unforeseen issues that may arise if implementation of new technologies is rushed into without consideration of potential problems and without sufficient policies and procedures.

Individual Aspects

There has also been a massive impact on individuals that technology has wrought. There is more access to data, information and entertainment than any time in history and the danger of information overload is just one potential issue for individuals. Individuals are now able to communicate globally in an instant, buy goods and services online and do all of this from a mobile phone whilst sitting in a cafe if so desired. However, the availability of technology, has also led to a wide variety of problems for consumers from identity theft, to aggressive marketing, viruses and email scams.

In developing countries, piracy combined with high costs has led to many individuals obtaining un-licensed products who will obtain un-licensed software rather than go without.(Bagchi et al 2006, Gopal and Sanders 1998) Whilst there is a desire by many to curb this practice (usually by those wishing to make money from them) there was an acknowledgement from IT professionals that in developing countries there is a problem with corruption at high levels and so encourages a culture that includes software piracy "if you've got prime ministers and politicians lining their pockets on a grand scale, why should the guy in the corner shop pay his software license?" (012)

There was also a concern amongst several interviewees about being unable to delete anything. This was raised with regards to online discussion boards whereby something posted years earlier is still visible. This has led to some people behaving much more cautiously on the internet than was true a few years ago. However, privacy and data

protection concerns for individuals are continuing to grow and become of concern. Some recent revelations about social media organizations access and use of personal information have also raised concerns about personal data ownership and control.

Ethical Concerns

There were several areas of concern that were discussed by many of the people interviewed. Most felt that their own job role was an ethical one and all considered that their personal values and beliefs meant that they behaved ethically at work. However, none of the respondents seemed to consider the ethical nature of their own work in any great depth. During the analysis, several key themes were identified as being of concern to the interviewees, although the degree of concern and the extent to which these concerns affect behaviour is quite varied. Some of these are as follows:

Trust

There were several areas where trust was seen as a concern. Firstly, there are concerns about trusting in the user of the technology not to abuse it. "The user is entirely in a position of trust and…that is definitely an ethical issue." (017) the trust issue also has particular reverberations around surveillance, both in the workplace and in public places. "How can we trust a system that by its nature breaches trust? You have breached the trust yourself in the first place …because you have not given out information that you are watching people." (007) further, trust is also seen as misplaced where technology is concerned, and several people indicated that there is a continuous need to improve, update and review technology as "you've got to review the technology you are using in case someone is prepared to misuse it." (017) These concerns indicate that there is always the potential for abuse or misuse and that security for example should never be considered to infallible as there is a likelihood that someone will try to break it.

Another element of trust, that of sharing data, and concerns about sensitivity of data was only considered by a small number of interviewees, but their perspectives were interesting and may have been discussed by other respondents with the appropriate questioning. These concerns were chiefly expressed by those who had a need to collaborate with colleagues and who were concerned that if there are strong security, authentication and access policies that this can limit the ability of colleagues to collaborate on projects thus making them less efficient or effective "there are certain bits of information that people like to share in order to assist with the development of a product." (015) This is indicative of some of the frustrations in combining a robust security and authentication system with access to resources across departments, organizations or individuals. However, often, sharing of information does not occur due to the sensitive nature of the data being held "they are very very sensitive about the data, even sharing it within the organization, forget about sharing it outside." (018). However, there were several proposals for greater sharing of both information and equipment. This was seen as a way to improve efficiency and reduce costs where by organizations would "pool responses together…to create an infrastructure that would be shared." (022). It may be that cloud computing will facilitate such sharing in the future, but there are concerns about the implementation and use of cloud computing that may make such collaborations difficult to administer (as discussed below).

An area that was only discussed by a surprisingly small number of participants was the issue of cybercrime. Whilst most interviewees were able to think of either a real life occasion or hypothetical scenario about infringements of ICT policy or misuse, there were very little explicit references to cybercrime or the threat of direct attack either from internal or external

forces. The most cited concern with regard to cybercrime was that of the disgruntled employee (see discussion below) and the use of social media to defame or ruin reputations, rather than computer fraud, hacking etc.

> "Some of the threats they involve, they may be cyber espionage, there may go down misrepresentation of the organization that if you get a disgruntled employee or a set of disgruntled employees." (007)

This may indicate a move away from concerns about direct attacks from anonymous hackers and more towards concerns about employee or ex-employee behaviour. This may also indicate why there has been a move towards greater levels of employee monitoring.

Social Exclusion

Surprisingly, only one respondent identified exclusion as being of any concern within the use of current technologies 'There are all sorts of examples in recent history of how technology has been designed that disallows…perhaps women or disabled people to take the benefits of the technology' (025). This is of concern because it means that whilst there are a huge potential number of people who either cannot or will not engage with technology combined with a lack of awareness by those who do have access. A two tier technological/non-technological society is therefore an ethical concern that again, may be in part addressed by education.

Privacy & Surveillance

Privacy and surveillance is considered to be a big issue in the area of technology and a considerable area of concern in that 'privacy is invaded by uncovering one's hidden world, by surveillance, and by the disclosure of concealed information (Solove 2001 p. 1393) and which has also been defined as 'the claim of an individual to determine what information about himself or herself should be known to others' (Westin 1968, 2003 p. 431). There are many attempts to define privacy, but whilst this is difficult, it is generally acknowledged that privacy is important to individuals, which is why it was quite surprising that some IS professionals did not consider privacy and surveillance to be an issue for them personally.

Their technical knowledge should have made them more aware of the potential for privacy and surveillance concerns. It may be that the lack of concern was due to their knowledge that systems were in place however, this was not indicated. Privacy issues were mentioned by almost all of the interviewees even though some were just indicating that they were not concerned. Where privacy and surveillance issues were identified as a concern, this was often combined with discussion about data protection, security and an awareness of the potential for data matching and mass surveillance.

There was also perhaps a little naivety about the potential of what they themselves were producing in some cases. "We are not interested in tracking people, but we are more, much more interested in showing the world that there is a new tracking technology and we want to present it" (008). But even then, there were concerns over corporate/government use of such technology which then questions their ethical approach to the development of such things "There is a cookie directive in the EU. And they promoted their solution as a solution for bypassing the cookie directive". (008)

Notably, with regards to surveillance, there was an indication that in developing countries where surveillance is much less pervasive, there was a concern about its potential impact that does not seem to be so much of an issue for those in societies where surveillance is more

commonplace. “The sudden knowledge that people are being watched every moment…it might kill that spirit of the free moral agent you know.” (007)

Freedom

There were some concerns about over-zealous use or impositions of restrictions of use, for example governmental influence on the IT systems of public bodies. “The government has said that it doesn’t want it out and if libraries went for open access, they didn’t get these government grants I mean this is the sort of thing that hints of big brother” (025). Surveillance as discussed above is also a concern when freedoms are considered, particularly where corporate entities are assisting governments to do so: This highlights the difficulty businesses have in behaving ethically, whilst maximizing profits. This is likely to become more problematic if the global economy continues to be volatile and competition for business combined with shareholder demands for increased revenues may push ‘ethical’ organizations to compromise their principles and produce un-ethical goods or services.

(Mis)-uses of technology

The misuse of technology was a concern of all of the interviewees, particularly those with a responsibility to ensure compliance with policy or who manage access. It was keenly felt by some who discussed their dismay at the behavior of people who undertake computer misuse in its various forms. “I hate the virus. I think why some people who are very intelligent, use their capabilities to do the bad things.” (020).

The disgruntled employee or customer

One of the most common concerns regarding the misuse of technology despite the lack of general concern about cyber-crime was fear of the disgruntled individual. This could be an ex-employee or someone who has had a particular problem with the organization. There were several concerns about malicious acts ranging from small scale database intrusion to cyber espionage. The reputation of organizations is potentially highly vulnerable to such attacks, particularly through the use of social media to defame or by installing a virus or undertaking a denial of service attack to disrupt operations. “Some of the threats they involve…maybe cyber espionage…misrepresentation of the organization…if you get a disgruntled employee or a set of disgruntled employees” (007).However, there was some indication that there were a significant proportion of IT professionals interviewed that seemed to be unaware of the size of the potential for harm. “The most serious infraction you might consider, that’s quite commonplace is, is unauthorized access to a dataset” (009).

Data protection and security in current technologies

Whilst there were some concerns about misuse, restriction of access to only those authorised to do so was another area that many expressed as being of particular concern to them or their organization “There are ethics around information sharing and what people need to know and what people should be informed of” (015). Most interviewees expressed confidence that their organization’s systems were secure but were aware that no system can be completely secure due to a necessary trade-off with usability “You can make your computer system entirely secure but it will be a nightmare for the users to use“ (010).

Implementation of technologies

With regard to the implementation of technologies, there were some similarities of the effect of organizational culture, or in some cases, reluctance to embrace technology on the ability of

employees to use or upgrade the equipment. In developing countries, it appeared that implementation of technology was driven by individuals within the organization trying to persuade management of the need and business advantages of using established technologies such as the internet. “It took me about three years to convince management to buy into the idea of the internet for the company.”(001). In developed countries however, whilst the impact was the same i.e. the slow implementation of some technologies, the reasons appear to be somewhat different. For example, within government organizations, slow implementation was more related to slow organizational procedures and bureaucratic systems than a lack of awareness of the need for such technologies. “Irrespective of emerging technologies that might have got end users excited and want it, they just couldn’t have it because things in military procurement took so long”(002).

Other implementation issues involved problems with shoe-horning of systems leading to clients not getting what they need “We had to fit into a piece of software that they had already spent a long time developing but were now adjusting to take on something totally different” (017), or Piecemeal implementation causing compatibility problems. “There are a number of different networks that are not connected. So you’ve got a lot of different logins and ID’s” (024).

3.1.2 Identified Emerging Technologies and associated Ethical Concerns

Social Media

Whilst not strictly emerging, social media is a rapidly growing technology that has been in use by the public for some time and yet is only just beginning to be recognised by organisations as a potential useful tool. For those organisations who regularly used social media, their regular use was driven by the need for collaboration especially in large organisations where they needed to coordinate. As one interviewee revealed “you know where you’ve got a group, a fairly large group of people, perhaps working across multiple office sites, then it is a quite useful technique to keep in touch with each other”. (009) Whilst some organizations were not encouraging the use of social media, others were keen to utilise its benefits by using social media generally and on a regular basis in order to keep regular updates, stay connected and be visible to the public and as a result market their organisations. Overall the main reason for organisations use of social media was to garner publicity. With its use also came concerns the accuracy of information that could be found on social media or even exchanged. There were also concerns that social media allowed to much divulgence of information that at times was sensitive. This, it was pointed out was hard to police due to the unclear laws and regulations surrounding such platforms. It was felt that it was far too easy for people divulge information that was at times inaccuracy. This at times was deliberately done for people who had an ‘axe to grind’ and/or were disgruntled such that falsehoods could easily be spread. Another concern was the ease with which those that were determined could easily steal other people’s identities or information in order to commit fraud. In addition, it was felt that social media was a tool that encouraged preying which could lead to sinister motives for those bent on achieving them. It was further thought because there was too much information posted, for users that posted information even the most sensitive of all had to be aware that such platforms and the internet as a whole did not offer the right to be forgotten. Whatever was posted remained on the internet. This has potential impact on the security and privacy of the users or organizations that used such platforms. Some of these concerns had implications for IS enterprises in that security of clients or indeed of business dealings could be impacted if there were no robust measures and or policies put in place. Therefore, the feeling was that organizations needed to come up with effective yet robust social media

policies that were fair on users within the organizations but yet adequate and precise to protect organizations interests.

Cloud Computing

Cloud computing was the most frequently described emerging technology. The development of cloud computing is generally seen as the next major development in the provision of software and services globally although there are some concerns about privacy, data protection, security and reliability issues (Ramgovind 2010, Katzan 2010). There were considerable concerns about cloud-computing, with almost half of the respondents expressing some concerns and reservations about what was perceived as its inevitable future implementation

> "It is envisioned that cloud computing would be a major technology in this field, and also cloud computing comes with its concerns about privacy" (005).

Privacy was a concern, particularly with regards to personal information and the use of that information. Key to these concerns was the issues of trust and control whereby "the control of the environment either rests entirely with yourselves or with an organization you trust" (015). Once the services of a cloud-computer provider are used, all of that data is then in the hands of the service provider and concerns were indicated regarding this by several interviewees "What you are doing is moving the envelope of trust to whoever runs the cloud and the communications between you and the cloud" (011).

Information management concerns particularly with regard to the location of cloud computing organizations were also highlighted whereby "You may sign up with a cloud computing company but you have no idea of where all their servers, databases are" (002). The country that hosts the servers for the cloud therefore needs to be considered by individuals and organizations prior to signing up to a service agreement as "if you are uploading your data to a cloud service, you can't be sure in which country that data will be hosted...which data protection directives apply, for example" (005). The uncertainty about the safety of information (Raamgovind 20120, Kalzan 2010) also meant that the level of awareness of the potential misuse of that information was referred to quite frequently."You can gather a lot of information from what people are doing and then use it for different purposes" (019). Strangely, it appeared that there were considerable concerns about ethical issues with regard to cloud computing, and yet they were not considered for current technologies nearly as strongly.

Other issues were also concerned with out-sourcing to a cloud provider were to do with governance and compliance, particularly of sensitive information. The concerns again surrounded trust and control "In terms of ethics…these things are outsourced to a third party, and a lot of it depends on the ethics of the third party in managing the infrastructure" (006). Compliance issues were concerned with the difficulties of ensuring compliance with policies and laws from the originating country. "So in effect you sign up to a Service Level Agreement, which you think is in compliance with your government rules...in fact you find the database and everything else is in...Wherever, which is well outside of what is permitted for transmission of personal data" (Reference 002).

Confidence in the service provider were also key to these perceptions as were issues related to the ability of service providers to guarantee that the service is both reliable, "you have to ensure that this trusted third party is in a position to provide you with a service all of the time" (022) and secure "You must ensure that this trusted third party is in a position to guarantee the integrity and confidentiality of your information" (022).

Overall, there was very little in the discussion that was positive about the implementation of cloud computing apart from the perceived advantages for developing countries where access to such infrastructure and levels of service is more difficult and costly. In most cases there was a deep lack of trust and confidence in the concept of cloud computing and the service providers and this was expressed by many of the interviewees "If a company I am dealing with had all their stuff on a cloud, I would want to make sure that that company was ensuring, not just paying lip service to, but actually ensuring that that data was secure at all times and not being used for anything untoward" (026)

Virtualisation

There was some discussion about virtualization and how this can be utilized in academic institutions as well as commercial organizations. This is one key application of the cloud that was identified as likely to become more widespread in the future, in part due to the vastly reduced costs that 'renting' software etc would have, particularly for individuals and small business. However, these smaller organizations may be the most vulnerable to problems with cloud security "say we are being virtualized…how could we ensure integrity and security at a personal level, so that personal information is not infringed, or company information is not stolen for example?" (004) A solution for larger organizations to many of the cloud computing and virtualization concerns may be the development of a private cloud system which may ensure greater levels of security and control.

Impact of emerging technologies

With regard to the impact of emerging technologies, apart from the usual concerns about increased surveillance, privacy and data protection and security (Moor 2006) there were several interviewees who were concerned about the loss of jobs where technology makes production more efficient with fewer workers "The facility will require less people to do the same job. And I think this will require basically the laying off of jobs" (003). There were no indications of how technology could assist in creating more jobs in different areas. One impact of the implementation of new technology is that it tends to remove the human element to improve efficiency and reduce costs. However, there are considerable concerns that advances in technology will lead to vast swathes of the population being un-needed in the economy. "The most concerning is the possibility that the facility will require less people to do the same job" (003) This may have become an issue for some of the interviewees as they may have already seen the impact of new technologies on the availability of jobs and so may fear that this will only increase.

Whilst there were some discussions about other technologies such as those to do with greater surveillance or improvements in broadband speeds etc, concerns not directly related to cloud computing were more to do with how to address issues that come up due to the implementation of new technologies or the adaptation of current ones.

Further, there was an acceptance of the inevitability that technology will continue to develop. This is of concern because if technology determines its own development, then ethical issues could be ignored during the development stage (Moor 2006) although business and profit motivations are also suspected to loom large in the decisions to bring out the next big thing, or even the next smallish increment it seems. This will then mean that technology may have these concerns addressed later (if at all), at an expensive 'add-on' stage, or they may not be addressed at all.

Technology however, whatever the motivations, is likely to continue to be developed. “It’s no good us pretending that technology is not going to evolve, it’s just the way we use it that may bring out ethical issues” (010). Further, the development of technology may also be driven by a seemingly symbiotic relationship between companies and the technologies they produce. “There’s a great saying that whatever Intel delivers Microsoft taketh away because the minute you get improved capacity they seem to demand more and more for their operating systems” (010).

There were quite a number of the respondents who considered that emerging technologies were often to do with the evolution and development of existing technologies. This was concerned with finding new uses, up-dating and up-grading existing technology or combining older and new technologies. Further, the use of mobile technology in developing countries is also considered to be likely to increase (Meso et al 2005). “Emerging technologies is also about different uses of existing technology and it’s also going to include things such as new applications on mobile devices for instance” (026).

There were also concerns about people wanting the latest technologies, but questions about whether they are actually needed or make business sense. The concern therefore is that emerging technologies may be implemented without consideration of the ethics of that implementation and that the training of IS professionals in the identification of ethical issues is paramount to enable technological development to thrive alongside an understanding of the impact of the technology, not only one those who use it, but also on society at large. (Stoodley 2010, Moor 2006, Harshman 2005)

Implementation/solutions

Implementation solutions to the issues and concerns described above are dependant to a large extent to the internal culture and governance policies and practices that are in place (See above section). However, it was often the case that there were sufficient policies in place but that they were not always clearly defined or practiced.

A particular concern to that of implementing and merging existing systems with new technology is that of compatibility “Emerging technologies in the first place have issues on the basis of compatibilities with the installed base” (007). In some cases this had created problems in the past and left some organizations with multiple platforms and multiple login access. Therefore, future implementation should try to overcome this with greater examination of how each upgrade will affect and be affected by the systems it is going to interact with. With regards to emerging technologies, there may be compatibility and obsolescence issues that need to be addressed prior to implementation.

Other issues are concerned with communication, stakeholder engagement and policy development. Where technologies are to be implemented, therefore the key areas for consideration were:

- Undertake consultation with stakeholders before implementation
- Communicate intentions early
- Ensure that the infrastructure is in place and that there are no conflicts with existing systems
- Only implement new technologies where there is a direct identified need
- Ensure that policy development is alongside the development process and not a bolted on afterthought

3.2 Ethical Issue Identification and Specification

3.2.1 Identification of Ethical Issues

How ethical issues were determined varied considerably across the interviewees. This seemed to be a difficult question to answer. Some considered this from a personal point of view and that identification of ethical issues is something inherent or intrinsic to people in general "You can also see it yourself even without being an ethical expert that this is ethically… questionable." (019) whilst others utilized their training to raise their awareness of the issues. "We are aware through our training, we are always aware." (003) Others were either unaware of the process for raising ethical concerns, or did not feel that their role required them to consider the issues, believing that their organizational processes and policies were sufficiently in place so that they did not need to be overly concerned. "It's the governance chain. So it starts with auditors, with engineering design consultants, through the management chain all the way up to the executive." (015)

For large and easily identifiable issues such as security breaches, ethics and technological security training may facilitate the identification of those issues. However, some of the more subtle privacy invading or surveillance technologies and issues are not so easily identifiable and may require specialists or specific policy instruments to be in place in order to address them along a recognized escalation path. "So it starts with auditors, with engineering design consultants, through the management chain all the way up to the executive" (015)

Many sets of policies and procedures to identify potential problems and address them however, were decided on a project by project basis rather than across the entire organization. This would take the view of the main stakeholders directly involved in the project, usually those of the customer and the developer. In large organizations, these were usually in the form of an overseeing committee who would determine policy and try to rectify concerns throughout the project "these committees will be determined and identified prior even to the initiation of the project." (004) It may be however that such organizations do have a broader, general set of policies for the organization, but that the interviewees were not aware of them due to their ongoing involvement in specific projects.

One of the main ways that ethical issues were identified in a more general organizational sense was through sets of governance steps and departmental responsibilities. "We have the information system audit team that is saddled with the responsibility of coming up with the policies and procedures and guidelines on how to deploy and use IT facilities." (022) However, there are also some concerns about whether these policy makers consider ethics in formulating policy directly or if they are merely embedded within organizational technical policies and not considered in their own right. "That is not to say that we do not care about ethical issues, but they are left within the technology framework." (007).

What this indicates is that the process of identification of ethical issues can be hugely variable across different institutions and sectors. "Large corporations with a big compliance department are going to be more aware as opposed to a small outfit where compliance is literally just dependent on how switched on or ethical the MD is." (014) This creates some concern, particularly for smaller organizations or semi-autonomous departments, in that ethical policies may be developed by individuals who rely on their own set of personal values and beliefs rather than through consideration of existing policies and consultation. However, personal values and beliefs tend to be fairly standard and ethical, so whilst one person developing a policy alone is concerning from the point of view of process and stakeholder consultation, it is likely that such a policy will still be ethical in its content. Policing such a policy however, is fraught with concerns about interpretation and consequences of infraction.

There was also some concern that in some areas, ethics are not considered to be important at all. "Some people do take all this sort of thing very seriously some people think it's not an issue." (019) In such cases, it indicates that there is still a lack of understanding as to the implications of not considering ethics when formulating policies or implementing new technology as 'in public policy it is often the case that legitimacy becomes subordinate to efficiency because notions and terms of legitimacy are discursively produced and defined by economic efficiency criteria'(Banerjee 2008 p.57-8) This approach is likely to be true of other sectors too and as most of the interviewees were in a senior position within their organization and therefore could influence organizational policy, this lack of concern about ethical issues is worrying for the future development of technologies.

3.2.2 Emerging ethical issues: Analysis by Geography, Age, Field of expertise/industry, Gender

The following analysis provides insight into a range of categories that were selected. These categories enabled us to more tightly focus on the issues by for example making an international comparison when we analysed the issues geographically and also a comparison when we focused on age, field of expertise and gender.

i. Analysis of views by geographical location – an international comparison

As indicated above, the research study recruited participants from across the globe including developed, developing and emerging countries. As there were clearly these different geographical localities of research participants, the need to understand whether there were different ethical perceptions according to geography was thought to be an interesting element of the study. This analysis would help to understand whether ethical identification, understanding and solutions were impacted by geography which may include culture, language, values, social and political considerations among others. Or whether there were any similarities. To this effect, countries from where participants came from were grouped into three categories:

Developing Countries	Developed Countries	Emerging Countries
Ghana	Australia	China
Nigeria	Canada	India
Trinidad	Finland	
Zambia	Hungary x2	
	Malaysia	
	Malta	
	United Kingdom x13	

Views of Participants from developed countries

Most respondents' views of emerging ethical issues in IS were to do with the following:

- Security on data processing – (Cloud computing)
- Loss of control – (Cloud computing)
- Cost
- Loss of jobs
- Espionage

- Impersonation and masquerading
- Exploitation
- Abuse and misuse of technologies

Views from developed countries

Respondents from developed countries expressed concern about the following ethical issues:

- Security especially on Cloud computing
- Loss of privacy due to Cloud computing
- Loss of control of one's data due to Cloud computing
- Lack of proper policy and policy of execution and implementation of emerging technologies
- Issue of readiness and general security
- More and more demands from competing IT corporations to outdo each other which would have a knock on effect on users
- Monitoring of users
- Technology falling into the wrong hands
- Intrusion especially on wearable technologies
- Copyright software and intellectual property
- Surveillance resulting to censorship

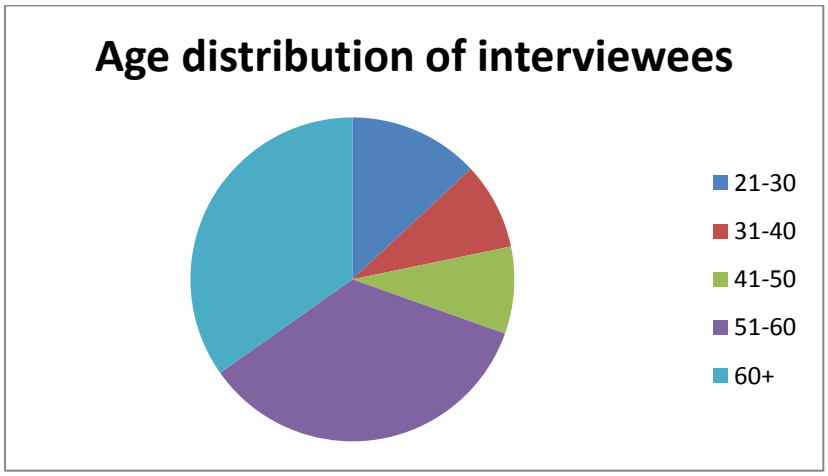
Views of participants from Emerging Countries

- Security

It appears that all three regions had more or less similar concerns of emerging ethical issues in IS. The issue of security, control as well as privacy in relation to Cloud computing was especially picked on. The difference between the regions was mainly on concerns of cost and loss of jobs which was mainly picked up by respondents from developing countries. Cost as an issue is perhaps not very surprising with developing countries because affording any new technologies, whether new or emerging in these parts is usually more expensive than in developed countries. Issues resulting from Cloud computing resonated with both the developed and developing countries because this is a technology that is fast filtering across borders for various reasons which include among them, perceptions that the technology is cheap and that sharing of information would be easier and faster without the need for expensive infrastructure. The desire not to worry about any infrastructure is an attractive one for developing countries whose IT development has for the most part been lagging behind due to infrastructure difficulties. However, as the participants particularly from the developed countries have pointed out, Cloud computing is a concern due to potential loss of control of one's data as the data is stored and managed by the service providers. This has implications for not only security of data but privacy as well because the minute one's data is stored and managed by someone else, one's privacy may be compromised. See the ETICA website (www.etica-project.eu) for a detailed analysis on Cloud computing as an emerging technology and its associated ethical issues. The other difference between the issues considered by participants from the three regions is that of intrusion and monitoring that wearable technologies are likely to allow. This is especially raised by those in the developed world perhaps because they are always a step ahead of those in the developed world in terms of technology development. For instance, there are more CCTVs in the developed world than there are in developing countries and as such it is more fitting that they would point to intrusion as well as surveillance as emerging ethical issues than their colleagues in the developing world.

When it came to solutions, the general consensus of the participants was the need for robust regulations and workable policies that would help in overcoming some or all of the ethical issues in IS. Added to this was that users and service providers needed to come up with proper auditing and management processes that the parties involved would adhere to as a way of having certain degrees of assurance and trust should anything go wrong.

ii. Analysis of views by Age



As can be seen in the chart above, there was a distinct skew of participants towards the older age group (50+) which accounted for around 70% of the sample. This provided an opportunity to gain understanding about perceptions of individuals regarding identification and governance of technologies within this demographic. However, as a third of the sample were below 50yrs of age, it is also possible to compare the perceptions of the two groups and to consider what similarities and differences there were.

With regards to current technologies, the younger interviewees were generally more concerned with process and compliance with the requirements of their organization and when asked about potential ethical issues regarding technology, several of the responses were disappointingly vague or negative in that they appeared to be unaware or unconcerned about potential problems i.e. “I don’t believe there are any; it depends on how you use them.” (018) and “I am not aware of these things.” (008). “I never considered that kind of situation” (020). However, when questioned more deeply, awareness of the potential was indicated more strongly amongst some of these respondents, particularly regarding security “Security, security is key.” (022)

The conclusion drawn from this analysis is that the younger proportion of interviewees appeared at least in the first analysis to be less aware or concerned about ethical issues than the older group. However, when questioned more deeply, the level of awareness was generally greater than initially thought in that they were largely able to identify potential issues such as privacy and surveillance although several were still rather vague about both the issues and the importance of them. This may be because ethical concerns are not something that they consider on a daily basis as they are concentrating on their job at hand only.

This perhaps also reflects concerns indicated by some in the older group that the current education of professionals might still be focusing too much on technological skills and business needs and culture rather than consideration of the implications of what is done.

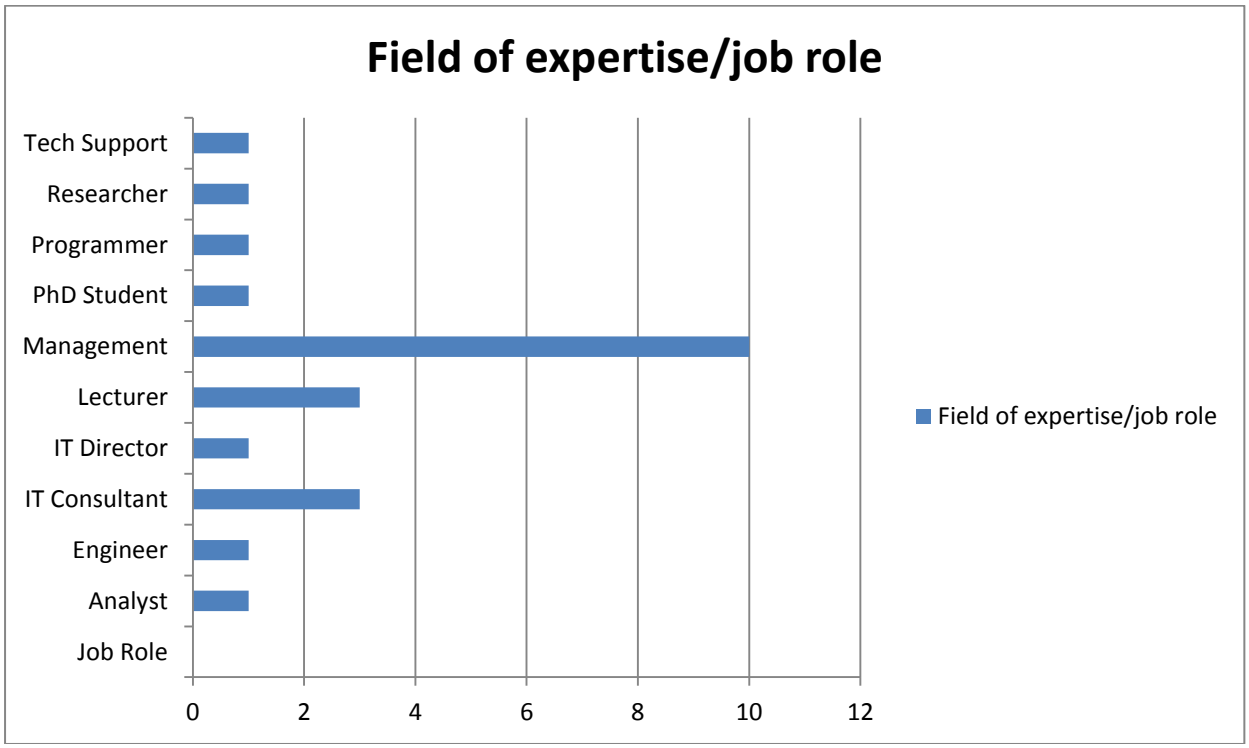
"Make them more aware of the values and so on that are underlying the systems they are developing." (023)

Analysis also revealed however, that many of those who were largely unaware worked at a University or a non-commercial organization. This indicates that perhaps the sector that the individual was working in had more to do with individual awareness and concern about the issues, than age factors do. However, it could also indicate that the pervasive nature of technologies such as the internet and mobile phones means that they go unnoticed as being potentially problematic for the younger interviewees.

A significant number of interviewees were retired or over 60. In some cases, retirement had been several years ago and this meant that they felt a little out of touch with technological developments and subsequent ethical issues. However, this was not the case for all retired interviewees and on the whole, older interviewees were more aware of the potential issues such as privacy and surveillance concerns. This meant that they generally had concerns about technology, and took steps to ensure that they considered ethical issues when using or developing technology "ethics is very much a part of everything that I do." (025).

The reasons for this difference in awareness between the under 50's and over 50's may be because in some cases those currently employed or earlier in their career, were working so closely with the technology on a day to day basis that they did not notice the dangers as much as some of those who, although retired, have remained interested in technology and can now see the wider implications. Further, those who were older but still employed had worked within the industry for many years, and had lived through the technological changes and so may have become more aware and concerned over time. Further, older interviewees tended to be in more senior roles where they were likely to be the ones making the policies. It is perhaps reassuring then that the policy makers are also those who are more aware of ethical concerns.

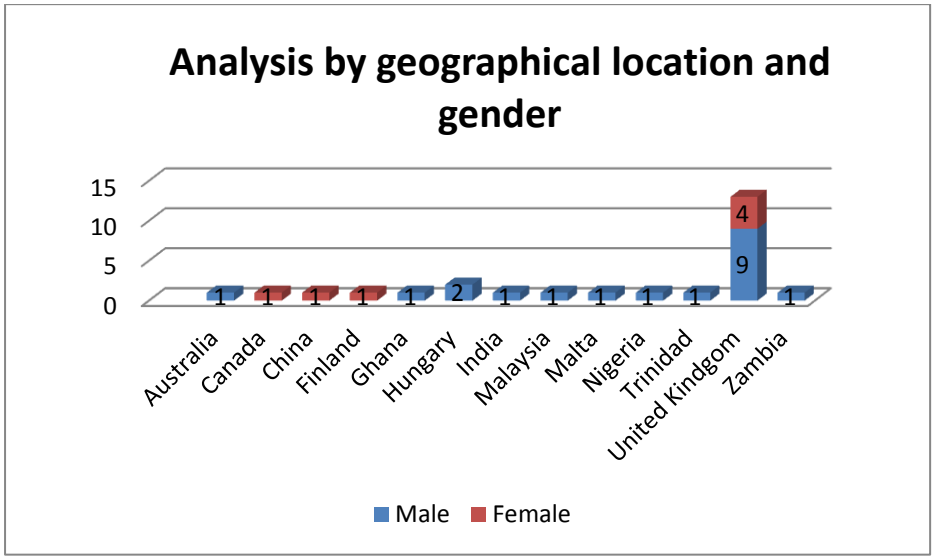
iii. Analysis by Field of expertise/industry



When job role and expertise were considered, as the chart above indicates, there were more management than any other type of employee with IT consultant being the next most prominent and which can be also considered to be a management level role. This coincides well with the discussion regarding the age demographic and seniority of role. This group was generally aware of the ethical issues and were keen to show an understanding of processes and policies in place. Further, this group showed a particular knowledge about training and the need for education "we do sensitize a lot of our people, especially things on security, and data security and personal identity and identification and there are courses that people need to do mandatorily across the whole company." (018)

Seniority therefore can be considered a factor in level of concern and awareness of ethical issues. This may be due in some part to the responsibility levels of managers and their need to be aware of such things in their daily work. However, not all who indicated management status were as aware of the importance of ethical issues and this is of concern for organisations if those overseeing processes are not aware of the policies and reasons for them. "Ethical concerns?... Erm, I am not sure that I have many." (010)

iv. Analysis of views by gender



As can be seen from the graph, there were more male than female participants even after a concerted effort to recruit a good gender representation. This is perhaps the nature of the field, with IS still a predominantly male field. It is an aspect that was recognised across the board by the research respondents themselves which indicates that gender equality appears to be a problem in the field for various reasons, which in itself is an ethical issue. Such a situation resonates with Adam (2000) who in her work found that there were low numbers of women in computing.

According to most interviewees, the lower numbers of females in IS involve a multitude of elements which include the fact that it is a field that women simply do not find attractive for a number of reasons. Although some organisations actively try to recruit qualified personnel from for example Universities, they encounter barriers because of low numbers of female

students who take IT/computer course as well as qualify. The problem is a reflection of early formative school years where IT/computing is seen as boys "thing". As this revelation shows "it's already decided when the young students were just finishing high school and are applying to Universities because basically the presence of females are lower at that part, so we have few ladies at the University too and I think this is related to that problem" (008). The respondent further stated that "The Company mainly recruits from universities in the city. IT/computer science courses are infamous for having an extremely low number of female students, so the result is not surprising at all. I do not believe that my company discriminates between genders" (008). This is despite there being deliberate government policies in some countries supporting at least a minimum of at least 30% of women to be recruited to decision making levels. Such policies are expected to filter into organisations, but due to problems of qualified female personnel as the interview above has revealed, it may be a problem to effect the policies.

Another reason advanced for fewer women in IT was that organisations were wary of recruiting female who would only end up taking a career break to raise families.

> Now, why I think, you know, why I think I said 30% was that I think there are a couple of difficulties that ladies have. First of all there aren't enough of them doing technological things, and there's no reason, certainly with the work I was doing, there's no reason why either gender can't do this work. I think one of the difficulties is continuity particularly if women go off and have families. And particularly you know, there's a lot of unemployment, employers are actually looking for continuity to some extent. They don't want to keep training people and you know, if somebody goes off for 5 years and then comes back, they've almost got to start again, particularly with the speed of change in technology. So there are downsides being sort of practical erm...but...er...you know, most of the jobs that I can think of, got involved in, either sex can do (011).

This seems to contradict the fact that despite there being fewer women in IT, the consensus from most interviewees was that women seemed to prefer to go into other fields where they were in higher numbers, certainly higher that IT such as in general management, law including marketing. As some interviewees indicated, IT was seen by many as masculine where areas like management, law and marketing were seen to be more feminine.

> So like, like, law school is feminine enough and marketing is feminine enough but not IT. That is out of the question, so this is, I don't think that [organisation] can do much to change that culture. It is society that must change. I think it is the general culture here. It considers IT as masculine" (005).

The respondent went on to give the following metaphor to illustrate the point:

> the newest TV series where they have scientists and IT professionals and er and er, what else, say also physicists and stuff, they are always men, they always have thick glasses and they are always at the periphery of society and that is our general image of the field.

Although law and marketing are seen as feminine, other fields were added to the list of areas that women preferred which not too long ago were seen as masculine. One particular interviewee had this to say about these other preferred areas:

> women are, they are just going to different directions and focused on different areas and then technology is very male but for instance, doctors and veterinarians they are almost 90%, are currently the students are women which is also a bit worrying (019).

An explanation for this sort of career choice away from IS by women is given in this quote

> I mean that's the computer society has been worrying about for a long time. I think that traditionally computing has been seen as being a sort of geeky sort of thing. You know people sitting in their rooms in the dark playing with computer not talking to anybody. Certainly not all computing people are like that but I think it's got a bit of that sort of image. I mean I've got daughters and were never the slightest bit interested into moving into the IT industry. They were quite happy to get into science but not into IT. I was certainly involved in IT education for a long time, and most of our students were male. I guess it's a bit like not many women getting into engineering. How we will solve it, I am not sure (023).

When these aspects are considered, the issue of unequal representative in IS seems to be the "masculine" nature associated with it. It would seem that with the right education, skills, experience and above all image, gender does not necessarily come into the equation.
For as the findings suggest, recruitment into the sector was mainly based on skills and experience. And as the research participants asserted, both genders are capable of being involved equally in the industry. This is certainly the case for all the female participants who while acknowledging there is a gender imbalance in the industry, admit that they have not found being in the industry a problem and that they have not been discriminated against. As one revealed "I have never felt or have been, sort of erm overlooked or not considered for a sort of promotion or anything. Maybe I have just been lucky. I do think it works in our favour being female because we are much better communicators" (024). The aspect of communication is an interesting one in that while it may seem as if it essentialises women's position as good communicators, a typically old traditional perception which appears to put women in categories that are seen as soft and feminine, the combination of being able to be good communicators while also being able to be an expert in the field of IS seems to be an important one. This is because the interviewer while acknowledging what she considers to be a feminine trait believes there is nothing wrong with this and that it should not be seen as a hindrance in the IS field but something to embrace because it can be advantageous "I think men in general are not very good communicators to be honest. And I think being female, and a mum, you know, I am used to juggling" (024). All female interviewees were of the opinion that as long as one was interested in the field, one was good at it, gender was not really an issue. This is reflected in the women who took part in the study who were all equally as educated as the men, with university qualifications, with more or less similar experience and in positions similar to those of men e.g. management (decision makers) (See table below)

Gender	**Position**
Male	Academic/Professor IT Ethics
Male	IT Director and Specialist
Male	Programmer
Male	PhD Student
Male	Management
Male	IT Consultant
Male	Management
Male	Management
Male	Analyst
Male	IT Consultant
Male	IT Consultant

Male	Tech Support
Male	Management (Retired)
Male	Management
Male	Senior Lecturer
Male	Military Officer IT/Management
Male	Management
Male	Management
Male	Management and PhD Student
Female	Website Manager
Female	Management IT
Female	Management/Founder
Female	Lecturer IT
Female	Management
Female	Academic/Mathematics Professor
Female	Management/IT Consultant

With this, most, when it came to the question of whether gender ought to matter when it came to emerging ICTs and ethics, the resounding response was a "No". As one interviewee claimed:

> I thought the current technologies anonymised gender. Made women more powerful and I presume you are thinking of that imbalance between male and female. And I would have thought that women were not per se, threatened by technology or are you implying that they are? (025).

This is an interesting question, one answered by researchers like Gillis (2004) who argues that proponents of technologies like the internet might be ignoring important political questions. In this case she argues for a serious examination of the internet beyond its supposed neutrality by looking more closely at the negative elements. Such elements like sexual exploitation, stalking, intimidation which may filter into current and emerging technologies matter not only in terms of possible impact but in implications as well. These and other issues make it important to consider gender when looking at ethics and emerging technologies in IS. As one participant surmised:

> I believe ours is an industry in which the genders may operate truly as equals each bringing both unique and shared values to the marketplace although I recognise that in some marketplaces, a male dominance still exists and is the preferred model for partner organisations. It is part of our commercial role to educate these people through our own business ethics (006).

Therefore, although gender issues are still evident, the general feeling is that the field of IS is not inherently biased towards men. It would seem that there is need to continuously work on transforming the social, cultural, economic as well as political cultures and institutions where there is need as way of encouraging more women to enter the field. Education and awareness would be a starting point.

3.2.3 Concepts of ethics, values and participants' beliefs

When approach, values and beliefs were considered, many of the interviewees felt that there were sometimes differences between what their organization's policy stated and what the actual business practices of their organization were. This was identified as being driven by business rather than ethical interests. Such practices can lead to customers believing that they are dealing with an ethical company, when this is not necessarily the case where "the ethics of the organization don't match the aspirations of the customer." (015[24]) If exposed, even where actions are not actually illegal, an unethical approach to business can lead to a loss of public confidence and loss of sales, although short-term benefits may be gained. There is a concern however, that much unethical practice may be hidden.

There was some cynicism regarding some practices. For example, where this involved the development or provision of surveillance technologies for governments it was acknowledged that there is a potential for large contracts and huge profits. The approach to ethics by businesses is famously variable and 'For a long time, social responsibility was viewed as a cost to the firm rather than a source of revenues' (Kashyap, Mir and Mir 2011, p.54). Therefore it was no surprise that the interviewees believed that ethical issues would inevitably be trumped by the potential for high returns and, due to their profit and growth focus, indicates that private sector organizations may be more likely to be persuaded to act unethically "I don't know if there is any organization that would say 'hey don't sell this technology to a dictatorship because that's not cool'." (005)

However, some private sector organizations took their ethical policies quite seriously and were also keen to involve stakeholders in decisions regarding new products and services. "We can invite people to discuss with us about this, and give their opinions and their concerns and we have already now been gathering feedback from ordinary people and what they feel, what they are concerned about." (019) Further, several indicated that their organization was keen to ensure that staff upholds their policies "In general our company takes a lot of practical steps including mandatory training for everyone about security concerns" (018). There was however a strong focus on security concerns and compliance within many of these organizations and so the training may not have given similar weight to other issues.

Within the public sector, there were institutions such as Universities where there were also differences in approach, with some indication of a lack of consultation about implementation or development of policies. The third sector interviewees tended to have an ethical viewpoint on their organization, particularly as that was part of the reason for their existence. There was a similar set of differences in the extent and enforcement of policies across this sector as in all other areas. There was a more general expectation of ethical behaviour in the third sector. The range of ethical approaches across all organizations led to the conclusion that there are no standardized policies across the IT sector as a whole, and that business and organizational practices are also highly varied; ranging from deep ethical considerations which are embedded throughout an organization, to those where ethics are either not considered, or are considered secondary to business interests whereby 'social responsibility and sustainability are defined by narrow business interests and serve to curtail interests of external stakeholders.' (Banerjee 2008 P.52)

[24] Numbered references represent interview participants whose names have been changed to numbers in order to protect anonymity

Personal values and beliefs were largely similar however, and this was across all interviewees. There was an understanding amongst the interviewees that they have a personal responsibility towards behaving ethically. "There are a lot of responsibilities; I think that, there is a responsibility to take into account, all of the relevant stakeholders, not just the people who are paying you" (023). There was a significant number who indicated Christian values, but this generally included the same or a similar set of words or statements to describe their values such as honesty, integrity and professional, as those who did not indicate a religious influence. Therefore the values and beliefs of the respondents were all very similar and all considered that they behave ethically in the work that they do.

However, it is difficult to ascertain whether or not those interviewed would always conduct themselves in the same way that they describe themselves. Therefore, much as organizational practices may not live up to the stated policies, an individual may not always behave ethically even if they consider themselves to have ethical values and beliefs. After all, when an organization undertakes an unethical act there is someone behaving unethically to enable it.

Only one respondent indicated that they would refuse to work in areas within the organization where they had concerns about certain aspects of some organization's work and that they felt were unethical e.g. the use of Deep Packet Inspection.

Although this question was not asked directly, it may be that the other interviewees would have given similar responses. However, it may also be that they felt that they were not in a position where it could be necessary to compromise their own values and beliefs in order to undertake a certain task within their organization. It could also indicate that IT professionals are still more concerned with getting the job done than what ethical concerns the job itself may raise. Which may be due to the fact that 'the IT discipline to date has been predominantly experienced as technology centred.' (Stoodley et al 2010 p.4). This meant that concerns about security, confidentiality and compliance with regulations and organizational policies, which were strongly indicated as issues, were largely dealt with during the course of a project by other people within the organisation.

3.3 Reflexivity

There was little reflection on unintended consequences resulting from the development and use of products, services or systems that were being developed, even when it could have the potential to lead to harm or distress to individuals or organizations. Sometimes it appeared that whilst there were policies and procedures in place, once an issue had been identified it was often taken out of the hands of the person who identified it and was dealt with by a different person or department. In addition there was often little or no communication back to the person who initially requested the investigation or raised the issue, and so it was often not clear if the issue had been resolved. "We have committees for the people who are leading the department. They have regular meetings like every week, every second week and stuff like that so, well I am not sure, but I assume they are making the decisions." (008)

This lack of communication and reflection which is often embedded within an organisations culture can lead to repetition of problem behaviour, systems failure or litigation and 'as a result, little learning occurs from mistakes and the same mistakes are repeated across institutions' (Leidner and Kayworth 2006 p.356). From an employee perspective, it may lead to frustration, or a belief that the organization is not dealing with the issues in a serious manner. The result of this may be that concerns are not raised due to a belief that there is little benefit in raising awareness of the issues of concern as nothing is likely to be done. There are

also potential problems with fear of retribution if the concern requires the employee to report on misuse by a colleague or superior. This may lead to potentially serious ethical concerns not being brought to the attention of management and could result in serious consequences at a later date. In all, there is a need therefore to encourage an open and participative culture that is not afraid of change or challenge.

3.4 Governance

Governance within organizations should ensure that problems and issues are dealt with quickly and effectively and can be defined as 'the system of laws, rules, and factors that control operations at a company.' (Gillan 2006 p.382). Where the organization is large enough to have dedicated departments to deal with problems and to set policy, then compliance with legal and moral obligations should be assured although, in practice this may not always be the case. Smaller organizations may have difficulties in accessing particular expertise, and may be more dependent on an individual's personal view for their governance policies and procedures (Sweeney 2007, Spence 1999).

There were significant differences in governance policies and practice as indicated by the interviewees although they were felt to largely reflect the organizational beliefs in several cases.

> "They have a strong ethics moral guideline which flows through everything the company does, of which they monitor and train on and report on and it does affect people's performance appraisal at the end of the year." (015)

Perceptions of governance gave the impression that some individuals felt that organizations could do considerably better with regards to openness and involvement for stakeholders "They should all be allowed to see their facts…This is what I mean by governance." (001) Others were more concerned with organizational practices and policies and in some instances indicated quite strongly that legal compliance was a driving factor behind much of their organization's behaviour.

3.4.1 Principles of Governance

There was some variety in the way that governance was conducted within the organizations. The principles of governance were not generally clear with some communication gaps and a lack of guidance. Some organizations, particularly those with strong regulatory pressures had strictly laid down departmental structures with a clear hierarchy and escalation path for issues and concerns. "So it starts with auditors, with engineering design consultants, through the management chain all the way up to the executive who have the responsibility for putting the oversight on the programme in the deliverables." (006)

Other forms of governance in organizations such as Universities were more committee based, perhaps with a charter or combined committees with a departmental structure "We do have different committees at different levels and different divisions, department and yes it would be different committees to address the problems or different ethical problems we have, we have committees looking at the corporate social responsibility." (004)

3.4.2 Governance policies

When considering how to approach ethical issues within an organization it is necessary to have IT policies in place that enable employees to comply with organizational requirements as well as raise concerns. Most of the interviewees indicated that there were rules for the use of IT within their organization.

> "If you want to use the computers for personal use, it can be during break-time or after closing. But the do's and don'ts are you know, going to you tube and other things you know, we don't allow that. So we literally control them as much as possible" (001).

Surprisingly however, there was also a small group who were either unaware of a policy or who thought that one did not exist in their organization "I think currently there aren't." (023) It is possible however, that the policies existed but were not communicated well to staff.

The view of many interviewees was that the overall aim of organizational policies is to ensure compliance with legal regulation. "I think the biggest motivation is to be legally compliant" (003) and to ensure the security of data and to preserve reputation. It also appears that there is a belief that provided these issues are complied with, they are more likely to keep both customers and regulators happy and that they are also behaving ethically. However, there were concerns that some organizations did not consider ethics at all, and only compliance with legal obligations "we have policies, but nothing to do with ethical approaches apart from what is in the local legislation." (003) and in some cases there was a complete lack of ethical oversight or policy within the organization. "I would raise it as strongly lacking, close to non-existent actually" (021).

However, there was some evidence of organizations that do try to behave ethically, have ethical policies and who bring in experts in security and ethics in order to evaluate projects before they are implemented. These organizations tend to also include the public more in gaining feedback about new product proposals and new developments (through surveys, social media and market research) and some had become more liberal with their internal use policies. "Up until 12 months ago they had a fairly strict policy against people using any form of social media. And then round about 12 months ago, the line softened." (009) Interestingly, there was no indication from the interviewees that more restrictive policies had produced greater work efficiency or better adherence to accepted ethical standards of behaviour than more liberal ones.

It appeared that the greatest impact on dealing with ethical issues is the embedded culture of the organization and the need for management buy-in to elicit change is vital. However, it is acknowledged that 'the overwhelming focus in both national and organizational culture IS research has been to treat culture as being stable, persistent, and difficult to change.' (Leidner and Kayworth 2006 p.14) and so may mean that some organizations will be slow to implement ethical IT policies without legislative or financial pressure.

Large and more formally structured organizations tend to have quite clearly laid out escalation procedures and regular meetings in departments or through committees to discuss issues of concern. This process however was not always communicated to the staff in other departments. Government organizations however, tended to be more procedural and have stricter policies than private businesses, and involved considerable stages and structures that needed to be complied with or acted upon before action could be taken.

It was observed that some organizations develop and try to enforce strict IT policies to protect them from any possible threat or legal challenge. This can however create more problems than they are trying to resolve, in that whilst the individual policies might be reasonable, the administration and enforcement needs of the implementation of multiple policies can be very costly or so restrictive for employees to use as to render the technology

unusable. “There are lots of policies; the difficulty is having enough resource to police them all properly” (011). A multi-policy system may also inadvertently contain contradictions, particularly if one department is concerned with security and another with ethics and each writes their policy based on different perspectives and needs. The need for good policy was recognized by several interviewees with the view that “good policy on ethics needs to be real and precise, and born of a need rather than grandstanding” (025).

On the other hand, some smaller organizations had developed an ad-hoc approach to IT governance, and in one case, use policy was developed by a single individual with no input from stakeholders or through consideration of other policies. “I managed to come up with this I didn’t really look into anything to write it, I wrote it myself.” (001). This is a strong indicator that governance policies for smaller companies offering services such as cloud computing may be of concern in the future, where smaller providers may not have strong evidence based policies or compliance and where escalation structures are not in place. Further, governance policies for cloud computing companies who are based in developing countries are likely to be difficult to check on in countries where compliance with legislation and data protection is weak and where Service Level Agreement (SLA) may be the only guarantee that can be given where ‘the only means that the cloud provider can gain the trust of clients is through the SLA.’(Ramgovind et al, 2010 p.7)

There were some very different viewpoints on policies regarding personal use of technology in the workplace. Some organizational use policies were seen as quite restrictive, particularly with regards to personal use of technology such as the internet. Other organizations had a much more open access policy for staff. Further, organizations that had embraced technology earlier tended to have more open policies with regards to access or had relaxed it somewhat over time. “Up until 12 months ago we had a fairly strict policy against people using any form of social media. And then round about 12 months ago, the line softened” (009).

3.4.3 Governance Implementation

Mitigation of ethical issues was considered to be facilitated by good structure by the interviewees. Governance is the key to this, and most of the respondents were well aware of the presence of these requirements. “We do have different committees at different levels and different divisions, departments, and yes it would be different committees to address the problems of different ethical problems we have committees looking at corporate social responsibility”. (004)

The implementation of governance quite often depended on the implementation speed of technologies. Therefore, in Government departments there were often very long waiting times for the implementation of new technologies and policies. This was true of government policies on IT as well as their processes towards agreeing to procure and implement new technology. As these processes and steps towards the adoption of new technology can take a long time, it means that Government departments can often lag behind industry. This may create problems for National Security as well as procedural and knowledge sharing activities, particularly in view of the rapid development of technology and the changing nature of threats to organizations from terrorist organizations.

In some organizations policies were implemented without consultation with stakeholders. This has meant that issues have to be dealt with later which can cause implementation delays. An example is a social media policy of a University that was sent out without consultation, which received negative feedback from staff and subsequent revisions.

Further, there were organizations whereby the implementation of the policies was largely due to a need to comply with legislation or to the specification of the client. It was indicated that the implementation of governance policies and procedures was generally enforced 'to make sure they are complying with the different rules and regulations that have been laid down as part of the project' (002).

It was also indicated that organizations where the implementation of new technology was rapid and business needs and opportunities were quickly identified; ethical IT policy implementation may take a back seat and may not be considered or addressed until after implementation of the new technologies, if at all. Clearly a balance needs to be struck between implementation of emerging technologies in a timely fashion, and ensuring that policies and procedures are developed that are flexible and robust enough to adapt to the changing technological landscape.

However, where new technologies reveal new potential for threats and concerns, 'the emergence of a wide variety of new technologies should give us a sense of urgency in thinking about the ethical (including social) implications of new technologies.' (Moor, 2005 p.111). The adaptation of existing policies and processes or the development of new ones is considered to be a concern. "One of the key challenges to us would be with regards to policy and the policy of execution, implementation and management". (004) There were also potential problems identified if these changes were not made quickly enough. "People haven't addressed the changes to working practices that might be required to make the system work". (010) Further, there was some frustration expressed that new technology means that there are likely to be problems whereby implementation is ahead of policy which means that the. "Processes aren't always there". (014)

3.4.4 Governance Practice

Most of the organizations discussed had some kind of policy regarding security or privacy "We do have different committees at different levels and different divisions, department and yes it would be different committees to address the problems or different ethical problems we have." (004).

It was interesting to discover whether governance policies, even if developed and implemented in a thoughtful and inclusive way, were actually adhered to in practice. Here again there were a wide variety of views. Some interviewees felt that their organization tried to wholly live up to its ethical policies by investing in mandatory staff training and awareness-raising, alongside robust policies and procedures as if this is not taken into account "will we put off all our customers by doing this" (026) which could ultimately affect the business of the organization.

However, it was also felt that some organizations did not live up to their policies, either due to a lack of enforcement, or because corporate desire for growth and to keep clients happy led to some bending of those 'rules'. "All of the local management are not imbued with that same traditional value. They are driven more by the hard-nosed commercial realities that most companies come up against." (009)

There was however, quite a lot of confidence in the ability of many existing organizational procedures and practices to adequately deal with issues of concern. Further, the risks of disciplinary sanctions were seen as a deterrent to the misuse of technology by some and in practical terms, most people were more concerned with security and compliance than ethics.

In general though, many individuals seem to have fairly clear ideas about their own particular route to raise issues by "managing and responding to incidents and its escalating ethical

issues" (006). However, once concerns were identified and the escalation process had done its work, there were some concerns that the final decision regarding an issue or concern may not necessarily be taken from an ethical perspective, but may ultimately be seen as a business or legal compliance issue. "IT systems should be developed and evolved by people who are sure that necessary protection can be made, but then it becomes a business decision about where you draw the boundaries" (010).

This may not be the whole picture however. Organizations, particularly small and medium sized enterprises (SME's) trying to develop their systems may not have ethical expertise or training in house. (Sweeney 2007, Leidner and Kayworth 2006). In such circumstances, organizations then may either appoint external contractors to develop their policies or try to muddle through themselves. Where an organization does not have the expertise or understanding in ethics, policies may be developed focusing on technical solutions alone or easier options than those required to address the issues. "There are other parts…that look at process and procedures to a greater or lesser extent. They are not as well handled as some of the technological things." (011)

There was an understanding by many of the interviewees that no matter how good a policy is, or how thoroughly a process is followed, the outcome will be dependent on the culture and working practices on a daily level within the organization. "It depends on the ethos company doing the work, and the management of their personnel and the oversight they have, how well they implement the mechanisms". (015)

And that often, ethical issues are considered only at a senior management level and subsequently fed downwards with little or no consultation. "There is an IT strategy group that the executive board mainly consists of, with some senior managers, so I think any ethical IT strategies would be discussed at that point" (024).

The concern with this approach however, is that whilst senior management are often trusted to have all the details and knowledge about the issues to hand, "there is an IT strategy group that the executive board mainly consists of, with some senior managers, so I think any ethical IT strategies would be discussed at that point." (023) However, in practice it may be better to include awareness of grass roots use and implementation during the policy making process, otherwise there may be a difficulty with practical compliance in a similar way to that of shoe-horned technological implementation, where rushed implementation may lead to security being compromised to enable the technology to be usable and to increase efficiency. The same therefore may be true about the practical application of top-down processes and policy development.

4.Analyses of the interviews: what do they tell us

In the grid of analysis chapter, we determined the criteria to analyse the interviews of IS professionals. As this is the final report, we have not reiterated some of the governance mapping that we already did in the grid of analysis in the analysis of the interviews. However, our analysis of the interviews will be to see if there are models emerging from them. With the parameters in mind, we have to determine if there are similar types of answers from the participants. What is their level of reflexivity? Are there governance strategies in place in their enterprise? How does that work: ethical committees, designation of a person in charge of the ethical issues, etc.?

4.1 Is awareness the solution?

Identification of ethical issue is the first step of ethical assessment, but it cannot be restricted to that alone. Determining what the ethical issues are is not sufficient to answer them. That

seems obvious, but that presupposition has been actually going on for a long time, in various procedural theories. Knowing where the problem is, where there is a space for a potential ethical problem does not in itself resolve the problem. It may raise awareness and carefulness, but that is a consequence that cannot be taken for granted, and moreover, that is not necessarily sufficient to avoid the issues. Some issues need more to deal with it than awareness. Awareness is a good first step, but it cannot be assumed that, because people are aware of an issue, then that will necessarily take care of it, and make sure to avoid to actualise the potential issue.

We cannot expect people to act fully rationally all the time. It is not because one is aware of an issue that he/she will act to resolve it. There are too many interests, too many contextual incentives on the policy makers, on the technological developers and on every stakeholder, for us to assume that it is enough to point out an issue to reach a solution. Every parameter is not at disposition of the individual all the time. We work within a very narrow state of information available, not only as a disposable knowledge, but also because the knowledge we have is not called up at every instant. That is why the context of an interaction is as important as the knowledge and level of rationality of the persons. A person can agree with an argument at some point in a day, than totally disagree minutes afterward, because another argument or another element of answer, knowledge popped up in his mind, or because the context of the conversation has changed, or the reference adopted, and so on. It can also be that the person thought about the consequence of the argument he agreed on, and found out he/ she find it morally shocking and so on.

However, the presupposition that people will accept the best rational argument in a discussion is a common presupposition that is going on in most ethical theories, in most ethical projects, and that is shared by most of IS professionals (as we have seen in some of the interviews).

4.2 Limits of risk assessment approaches

This kind of presupposition (reducing ethics to awareness of the existence of some issues) is also the blind point of risk assessment in general. This is why we do not talk about risk assessment. Presenting ethical governance with the vocabulary of risk assessment is defining the subject before even starting to understand it. For the same reason we could not reduce our approach to ethical issues determination, we cannot reduce our approach to risk assessment (cf. Deliverable 1.1.). The way of which a risk is presented, the way it is perceived and the way it is produced influences strongly the public opinion about it, and the decision –but only if decision-makers are willing to implement effective participation of citizen in their decisions.

The general opinion of a risk depends on the type of risk we are talking about, and the perception of the risk by the population. The acceptability of the risk depends on something other than calculation of interest and the participation of the people. Not only the acceptability of the norm has to be taken into account, but it does not mean that, because a risk is acceptable, it will be accepted. The actual acceptance asks for more than rational acceptability of a risk. Values play a role in the decision of the lay people. And, if the participative has to be taken seriously, it cannot be decided by the expert deliberation whether or not the decision, if based on values, is a cognitive error or just a difference of value between lay people and experts.

A deliberative approach cannot be sustainable with a power of decision given to expert on the correction of cognitive errors. It is impossible to distinguish cognitive errors from a

difference in value, as Lenoble and Maeschalck state[25]. But we can go further, and say that it is not even necessary, in the sense that it is not a matter of acceptability, but a matter of *acceptance*. And the deliberation of experts is not in the position to frame the acceptance of society. Experts have then to take into account values *and* cognitive errors, in order not to decide something that will be impossible to put in practice by the lack of acceptation from society.

But taking into account the context and the value is setting up an all new way of dealing with ethical issues. And the expert framework cannot reach the full understanding of an ethical situation, because it involves a top-down approach that frames the result of the analysis experts can make, and in general, involves strong presuppositions that lead to failure to understand the actual way for the society to deal with an ethical issue

But before going in the theoretical analysis of the models of governance and the presuppositions of the current approaches, we have to stick to the ground, to avoid such decontextualised approach ourselves.

4.3. Governance trend in the interviews

This section aims at taking a step outside of the analysis of the content of the interview, to understand underlying trends of behaviour, the models and presuppositions that appears in the interviews. Those hints on the ethical disposition of the IS professional will help us to see the blind point in existing ethical procedures, and, as a correlation, help us to test governance theories, and see their limits and the legitimacy of their critics.

This will also allow us to confront our models to the actual way of doing ethics in IS. How do the ethical behaviours fit in the models we have constructed? Are there behaviour patterns that reflect the models we determined? Are there patterns of behaviour that do not fit in the models? Are there differences between the perception of the participant behaviour and the actual behaviour in terms of ethics? How do we adapt our models? Is there modification to be done? (Reflexivity on our own criteria).

Our analysis showed that the context is never fully opened, but the interviewees often focus on a single issue that fill all the ethical worries, without letting space to other questions to arise. The lack of openness to civil society is also obvious when looking at the relation of the participant to expertly compare to their relation to civil society, and to the context in general. There are two main normative inputs for the interviewees. The first one is internal and the most occurent: the big majority of the interviewees rely on their own experience, values, common sense, professionalism and so on. The second one is external, and a bit less common, is the use of the experts or committees, either inside (mostly) or outside the company. We have also to notice that there has never been any mention of other forms of ethical review, evaluations, or procedures. The Standard model is still very well embedded, with some revised Standard behaviour –also to notice that some of the Standard model behaviours are often borderline with revised standard, as they sometimes embedded a form of discussion between some decisions organs.

The analysis shows very strongly that most of the IS professionals interviewed –if not to say all of them- have a tendency to top-down decision and seems to have no knowledge of other

[25] Lenoble, Jacques, Maesschalck, Marc, Toward a Theory of Governance, the action of Norms, Kluwer Law International, 2003, p. 233.

forms of governance procedures. They also rely a lot on their personal experience, which seems to indicate a missing link between ethical expert that take decision in the company, and the day to day work that is mainly manage by personal experience. There is also a strong tendency to judge that the potential ethical issues are due to the misuse of the users, and are consequently their responsibility.

From the interview analyses, we can infer some trends:

- **Ethical issues**: from interviews, the majority lack an efficient understanding of the issues related to the ethical and social implications of the technologies they have been developing;

- **Relying on experience**: Most of the interviewees rely mostly on their own competence and common sense to identify and resolve issues.

- **Relying on code of conduct or laws:** Some professionals mention the presence of codes of conduct or legal procedure they have to comply to.

- **Impacts on society**: the majority of the interviewees do not foresee or at least do not articulate or make explicit the possible impacts and threats of developed technologies to society; impact on society is also often reduced to very abstract "ethical issues" like privacy or trust, which seems to imply society, but the implication is often to assume. When having to actually describe the issues, society and users outside of the company very rarely come up.

- **Reduction to awareness**: most of the interviewees are aware of ethical issues, but reduce it to a matter of awareness from the society.

- **Emphasis on one ethical issue**: the IS professionals interviewed has tended to underline only one ethical issue, often the same, such as privacy and security. It shows the impact of the publicity about those issues, and, as a correlation, the lack of reflexivity from the interviewees.

- **Top-down approaches**: there is a tendency towards leaving ethics and ethical issues in the experts' hands or, if not expert, on the hands of their superiors (links with their reliance on experience);

- **First level reflexivity:** most interviewees are conscious that ethics has to be taken into account, but they seem satisfied with the procedures in place, and if some may put in question their own action (first level reflexivity), none reach second level reflexivity.

- **Models**: standards, revised-standard and to some extend consultation models are used. Co-construction model seems not to be easily compatible with the highly hierarchical environment of IS management (even though there has been some hint into collaboration, it has always been between professionals, and never with the users). The model that is the most used is the standard model.

- **Stories and examples** : While being often very theoretical when asked about ethical issues, when pushed or when the question tackles more specific concerns, the conversation often turns into a personal story that happened to the professional or someone they know, and which inform the previous take on ethical issues.

As we can see, the relationship to the norm emerging from this analysis is quite submissive: the (ethical) norms are applied as such and the main presupposition (or "framing") is to rely on their own experience or on others experience, sometimes on code of conduct (but often coming imposed by the chief), without questioning the following:

- The context of the construction of the norm;

- The way how the norm is defined;

- The application of the norm itself.

In this way, the "technologically determinist" technology is seen as external factor from society and technologists' strategies do not appear to be involved with ethical issues and, as a consequence, the engineering and the ethics fields remain apart one from each other. The presuppositions to be taken into account in the interpretation of an ethical behaviour are not interpretations of the context in the narrow sense of 'situation' or 'environment'. In fact, a context is defined mainly in a 'relative' or rather a 'relational' way, and then refers to the individuals' social, cultural and experiential background as related to a situation or an environment. A context can be defined essentially, if not concretely, through a 'negative' approach based on a method of conceptual and experiential reduction. In this respect, a context is 'all what you get in reduction when you eliminate all the conceptual and experiential elements that characterize a situation or an environment'. A context as a relational background is the condition for the individuals to shape and frame a proper view on the issues at stake in an ethical analysis of a given problem. The background is not to be separate from the situation or the environment, but is precisely interesting for the ethical analysis when it relates to a situation or an environment. Indeed, a context as defined in relational terms is an indicator of the specific relation to the norms that is assumed by an individual or a group.

5. Presuppositions in Ethical theories

The focus on the effectiveness of the norm is, in itself, quite untraditional in the field of ethics and governance[26]. The reason of the lack of questioning about the effectiveness of the norms is that implicitly all theoretical approaches presuppose that the conditions that determine the effectiveness of norms are linked to rules presupposed within the mind (mentalist presupposition) and consequently are supposed to be a function of mental capacities. Since the mental capacities are independent of the external context of the subject, the governance theories ignore the question of the effectiveness of the norm. In other words, other governance theories suppose that the effectiveness of the implementation of norms is

[26] "Procedural ethical theories, in particular, first set themselves the task of indicating a procedure through which norms and modes of action can be *rationally grounded* or criticized, as the case may be. Because they must deal with this task separately, the impartial *application* of valid principles and rules arises only as a *subsequent problem*.". Habermas, Jürgen, Erläuterungen zur Diskursethik, Frankfurt am Main, Suhrkamp, 1991, p75

not a question, because it is not dependant of external governance, but is the intern result of the norm itself. The mentalist presupposition is then thinking that the existence of norms is enough to activate mechanism in the mind that will assure the effectiveness of implementation.

However, if the problem is addressed, the solution cannot be in the theory of norms itself, according to the mentalist presupposition, because it depends on the condition of the mind, that accept or not the norm. The mentalist approach is often linked to an intentionalist presupposition, which assumes that the norms effects are deductible from the only intention to adopt it. That means that the intention of adopting the norm is the only factor that determines the effect of the norm. The will of the users and developers to implement the norm is simply presupposed, so the problem of implementation is solved without even being addressed. Another very common presupposition is the schematising presupposition, which assume that the effectiveness of the norm is taken from the norm itself, as a simple deduction of the norm. There is nothing needed than the norm itself in order to apply it. The effect of those presuppositions –which has been developed in the School of Louvain[27]- is that the condition of the application of the norm is ignored, because a lot of theories consider that those conditions are in the mind of the person, and if they do not consider it to be automatic, at least, they think the governance theory has no impact on it.

Traditional governance approaches miss the link between the construction and the application of the norm. This analysis has of course yet to be demonstrated, and will be in the next sections. For Habermas, the main thinker of discursive ethics and proceduralism, the question of the norm *application* is only a "subsequent problem". The main problem is the *construction* of the norm, which has to involve every stakeholder and every interest to ensure fairness and equality. The application of the norm is a separate task, which cannot influence the debate in which the norm is constructed. This conception had a huge influence on ethics and is, for us, one of the limits of the discussion theory.
These presuppositions condition the way in which the norm is related to the context:

Intentionalist presupposition	The norms effects are supposed to be deducible from the simple intention to adopt the norm. Additionally, there is the presupposition that the actors in a participatory approach will have capacity and intention to contribute to the participatory discussion.
Schematising presupposition	Involves Kantian schemes (rules), in which the operation of the application of a norm is a simple formal deductive reasoning on the basis of the rule itself. The determination of the norm is linked to these rules, such as ethical guidelines, or laws, or other external sets of rules.
Mentalist presupposition	It relies on the mind having a set of rules (or schemes, in Kant's words), that predetermines the effect of a norm, and does not depend on any exterior context (to that of the thinker). This is commonly seen when participants in a participatory approach come to the setting with their own

[27] But for us, not pushed into their deepest consequences. See for the School of Louvain, for instance, Lenoble, Maesschalck *Beyond Neo-Institutionalist and Pragmatist Approaches to Governance*,Op. Cit.

	particular ethical framing, or with some preconceptions as to what ethical issues might arise.

The question of the construction of the norm has to be taken together with the question of the application of the norm.

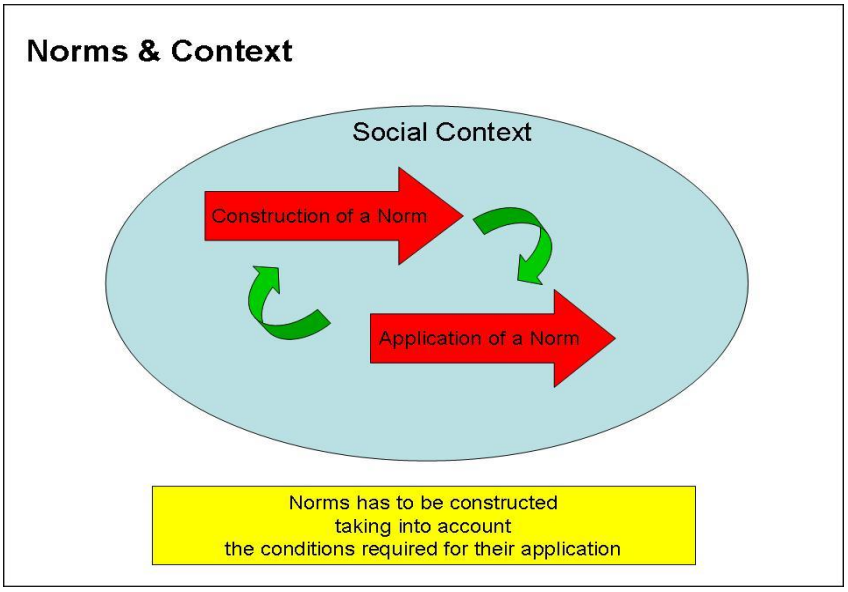


Figure 3. Norm and context.

The main problem of the research in ethics, whatever the application field may be, is that it is either totally theoretical, with no mention of the application, or too empirical, with no mention of the resolution of ethical issues. Both come from the presupposition that the existence of the norm is sufficient to insure that society is in good working order.

Those two limits, which are strongly linked to each other, is the starting point of our analysis. By our method, and its particular manner of mixing bottom-up approach and empirical research, we aim at overcoming those limits, which means that we are willing to found norms taking into account their context of application, by the mean of an empirical study, which will allow us to construct the context and a list of ethical issues at stake, then try to resolve those issues, not only by mentioning them, but by adapting norms to their very existence, and make their existence part of the norm construction, in order to comprehend every aspect of the "ethical reality" of the field at stake, and by doing that, give the opportunity to make norms effective.

As a recall: the two limits are:

- Separation between the problem of norms construction and the problem of the application of the norm, → Blind point concerning the context of application.	-Disregard for the problem of the resolution of the issues, -Presupposition that the determination of ethical issues and the construction of a norm is sufficient to resolve the ethical issues

Those considerations, among many others, have been systematized in a theory that is currently being tested throughout some projects on different fields, and that has been called "comprehensive proceduralism"[28].

6. Proposed solutions to ethical issues

6.1 Codes of Conduct

Codes of conduct and codes of practice whether drawn from the organization itself, professional bodies or legal regulation were seen as ways to improve the approach taken towards solving ethical issues and to create policy, whether for current or emerging technologies. However, as there is little standardisation within these codes any more than there are standard organisational policies which can lead to conflicts. "All of the ethical dilemmas are balancing the codes of conduct between these various things...and sometimes this can conflict" (006).

There are however some other problems in the use of codes of conduct that are set down by IT professional bodies in that there are not only a variety of different codes, the membership of such organizations by the IT sector professionals is generally perceived as low and if there are no sanctions for non-members then compliance with all aspects of a particular code is likely to also be low due to its lack of regulatory powers. "How many of those people would be members of either the IMIS or the BCS it's a very low percentage" (012). So unless the majority of IT professionals actually become members of such a body, it is unlikely that a standard set of professional codes would be either produced or adhered to.

From a corporate perspective though, it makes sense to have departments that can oversee compliance with codes and regulations. In large organizations this is likely to be in a dedicated department or unit "These days most corporates have ethics and diversity departments to whom you can go to for these questions" (006)

However, as discussed earlier, there are some communication issues in that it is not always clear about the escalation route for ethical concerns, and so for full effectiveness, such departments should ensure that they utilise ethical processes themselves regarding transparency and consultation with staff, as well as ensuring compliance with specific external codes and laws. In addition, if done well, as von Schomberg (2011) points out, codes of conduct can allow for the promotion of co-responsibility amongst developers and users of new technologies.

6.2 Technical solutions

There was a lot of discussion about the possibility of using technical solutions to address some of the concerns, chiefly security and authentication. It was also acknowledged that a purely technical training of staff does not necessarily mean that they do not understand the broader social implications of their use of the technology. "The only training we got is purely technical however of course these concerns come up because even we as experts become aware for example of the potential dangers" (003). The indication here is that it is necessary to take into account the inherent awareness of technicians as being a part of their overall skill-set. To acknowledge that such workers are aware of potential ethical issues means that there

[28] The term « comprehensive proceduralism » and the core of the theory have been invented and developed by Sylvain Lavelle, Stephen Rainey and Philippe Goujon. As this is a summary of the project, we cannot enter the details of this theory.

is an opportunity for managers to understand the practical ethical issues that may arise from the use of technical tools by consulting with technical staff and providing clear routes for them to raise issues of concern.

What this means is that if there is too much emphasis and reliance on technology to ensure privacy and data security etc without acknowledging the potential ethical issues, then this may lead to a culture where it is considered that there is no need for staff to be concerned or even vigilant about such issues. "We know that technological efforts assist in achieving an ethical environment." (007) However, technical solutions should not be the sole way that ethical issues, particularly to do with data protection, privacy and surveillance are dealt with. This is due in part to the risk that over reliance on technology can lead to complacency that everything will work perfectly all of the time, when in reality things can and do go horribly wrong if technological solutions are relied on completely without sufficient oversight or back-up.

6.3 Education

Education was seen as a key to improving awareness and addressing concerns by a significant number of interviewees. This was also seen as a business concern particularly with emerging technologies in that resources would need to be spent on training in the workplace. "Many users have to learn the emerging technology, there will be costs associated with learning" (007). However, the implementation of new technologies in organizations requires that users are properly trained in their use as longer term there may be greater associated costs if staff are un-trained and not using the system appropriately. Therefore, training costs need to be factored into implementation of new technologies as a direct cost.

With regards to the education of future professionals at University or within schools, there were some concerns about the highly technical education that developers generally receive and the need for them to also be aware of the potential harms of what they produce. "Probably need a more professional attitude…they shouldn't just see them as an intellectual challenge, they should see them in the whole context to humanity and the actual system that humanity will use" (023). This raises questions about the nature of training of professionals and researchers in that whilst investigation, science and innovation for its own sake is essential for progress, there is still a need for those developing technology to have an appreciation of the potential uses of that technology and impact on stakeholders. Through changes to the way that IS professionals are educated to include awareness of the impact of what they produce the aim therefore is 'to prompt conceptual shifts by exposing professionals to viewpoints they may not have seen before, whereby they are challenged to expand their awareness of who it is they are responsible towards and the impact that has on their own rights.' (Stoodley et al 2009 p.390)

Some of the interviewees who were involved in a professional body or education were aware of the need to make people aware early on and "one of the things we are getting involved with is computing in schools" (026). Education of children was not the only concern however and there was a felt need for greater education and awareness building campaigns across society in general. "They are powerful technologies and so education in the usage of these technologies and making people aware of threats and issues surrounding these technologies is very, very important" (007) .

6.4 Consultation

It is generally understood that one of the most effective ways to formulate policy and therefore effective processes is through stakeholder consultation. This is because they are not

only knowledgeable about the impact new technologies are likely to have on them, they can identify and provide solutions previously not considered. This is because different stakeholders 'have different perceptions on the problem definition and have different information and ideas on solutions' (Edelenbos & Klijn 2004). It is perhaps surprising therefore that there is still a lack of engagement with end users and stakeholders within the IT sector. There were only three respondents who discussed feedback or the need to engage with stakeholders when developing and implementing policy or systems.

6.5 Legislation

Legislation was looked upon as being a necessity to comply with, and this is a core requirement in some organizations such as banking. "There are regulatory requirements now, about disclosure of information". (022) However, as indicated above, there were concerns that where policies and processes were complied with alongside legal requirements, there was a danger of losing sight of other ethical concerns that may arise.

A middleware project developed in the EU to assist in protecting the privacy of customers and to help in compliance and ethical approaches to technology was seen as one possible way to improve consideration of ethical issues. PRIME is the Privacy and Identity Management in Europe project which aims to, "negotiate privacy policies with customers and take care of enforcing those policies automatically". (005) However as only one interviewee mentioned this project, it indicates that PRIME has not been taken-up by the industry. This may be due to a lack of awareness of the project, or a lack of felt need to implement it at this time. However, it was felt by the interviewee that organizations would only adopt these types of protective technology and policies if it is enforced through legislation. "These issues can be rectified, but not at a company level. So, there must be legislation for example, and there must be new technologies like the EU project Prime." (005) so that "every company or service provider that wanted to show that they respect customers privacy, they installed the so called Prime middleware on their computers which would negotiate privacy policies with customers and take care of enforcing those policies automatically" (005)

It was felt by many interviewees that legal obligations were a particular driving factor in the consideration of ethical issues from the perspective that if the law is being complied with, then this must also mean that the organization is behaving ethically. Whilst this approach may in part assist in the development of ethical policies due to the nature of legal compliance, it cannot be said that legal obligations are able to act as an umbrella to ensure corporate social responsibility. Therefore, organizations need to fully buy-in to the needs of ethical approaches that go beyond mere legal compliance and this should be driven by change in the internal culture of the organization that recognizes the importance of ethics.

7. Ethics and IS in the 2020 enterprise

There appears to be a steadily growing demand and expectaption of organisations to adopt a more ethical stance in how they run their businesses including how they use they technologies within their businesses from clients, would-be end users of the technologies, from their workers as well as from policy makers. This is more-so because as earlier stated, technologies are becoming core and central to our everyday life and the role that technology plays in our everyday becomes even more evident with emergin technologies due to the expected impact the future technologies are expected to make as they become mainstream. Therefore as Venable, Pries-Heje, Bunker & Russo (2011) it is not longer enough for information systems to be concerned about improving IS for the benefit of improved and efficient business but that equally to how IS impacts people and their daily lives. They argue

that IS should not only be about increasing profits aided by efficiencies that better IS bring but that this needs to be balanced with improving the human condition because the two go hand in hand. That is why the IDEGOV project notes that although some organisations have shown a concern of the importance of ethics in IS by a need to assess the reaction of the public to a technology or a system, that that concern is not enough without a real implementation of the ethical thought in the process. As touched on, when approach, values and beliefs were considered, it was evident that there were differences between organisation's policy on ethical approaches, for those that had them, and actual practices. Some interviewees were of the opinion that despite an organization hailing itself as ethical, this was at odds with reality when consideration for profit came into play. The danger is that this can lead customers looking to be associated with ethical organizations to distrust such organizations. As noted, in the long run this can lead to loss of confidence and consequently loss of profit in the long term. It would therefore be in the best interest of organizations to uphold ethical standards because clients and workers alike now more than ever expect ethical behavior.

Typically, this will have an influence on the 2020 enteprise in terms of how IT and digital artifacts are handled and dealt with in relation to how ethical issues are considered and addressed. It will no longer be the case of viewing social responsibility as a cost to the firm rather than a source of revenues (Kashyap, Mir and Mir 2011, p.54) or as a by the way thing in order to meet legal obligations that relate to data security as an example. As emerging technologies become mainstream, the ethical issues also change and move beyond the usual security or privacy issues to include as seen above trust, social exclusion, surveillance, freedom, misuses of technology, reliability, loss of jobs, control to name a few. These concerns will also be in different contexts and will need to be dealt with beyond legal obligations but at the heart of human and societal dignity. This is more-so because although IDEGOV observed that some organizations may develop and try to enforce strict IT policies to protect them from any possible threat or legal challenges, these may actually create more problems because whilst the individual policies might be reasonable, the administration and enforcement needs of the implementation of multiple policies can be very costly or so restrictive for employees to use as to render the technology unusable. Therefore, the implication for the 2020 enterprise is that good policies which are precise and dealing with ethical concerns will been to be developed and should be based on need rather than based on the need to impress or circumvent possible legal challenges.

Furthermore, addressing ethical issues of technologies should not only be seen as being demanded by end-users because the reality is that these aspects are now more and more being demanded by policy makers. Take for instance EU's call for Responsible Research and Innovation (RRI) which is essentially a call to engage all of societies stakeholders in a transparent, accountable and ethical manner in research and innovation. von Schomberg (2011) captures this well in his definition of RRI:

> Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society) (p.9)

What this means for the design of the 2020 enterprise is a move beyond an insular innovation process and adoption of technologies that only benefits the enterprise to a more open and ethical one with clients/end-users at the heart of this innovation. This means being

accountable for the technologies that the field of IS adopts, being reflexive in the ethical processes within the organisations, adopting codes of conduct that are relevant and not merely a grandstand and consulting with different stakeholders in the design, implementation as well as maintenance of technologies within the enterprise.

Thus with the new technologies come new challenges which will need to be dealt with in novel and innovative ways. Currently, there is a vacuum in the governance of how ethical issues of current and emerging technologies are dealt with. Take the example of cloud computing as one of the emerging technologies that has been identified for instance, there is a new value creation system that needs to consider ethical issues of privacy, cost, security, job loss for instance which produces tension in organisations between old practices and new practices. New practices will have to address governance arrangements that take into account how the enterprices access data, process data, use data, store as well as manage data with minimal ethical concerns. Without doing so, issues such as security, privacy, authentication will remain major concerns which may impact trust between clientile and IS organisations.

From the findings, it is clear that the 2020 enteprise will have to adapt and adopt new ways of dealing with ethical issues or meeting ethical expectations. This is because as von Schomberg (2011) asserts, such considerations allow for societal's acceptance of technological advances. He makes the point that ethics should not be seen as a constraint to the advancement of tehcnologies because doing so can lead to a rejection of the very technologies being developed to servce people. He gives the example of how body imaging technology at airports has raised constitutional concerns in Germany and how smart meters in Netherlands homes that were meant to allow optimalisation of energy use were rejected by the very people they were meant to sere on privacy grounds. Had people's potential concerns been looked at before the introduction of such technologies no doubt costs, time and related other aspects would have been avoided. These are critical issues for the design of the 2020 enterprise as ignoring such potentialities may have unwarranted implications for the future enterprise. As seen from von Schomberg's Germany and Netherland example's which show consumer concerns and rejection of some technologies that do not take into account ethical considerations, a point also picked up by Preissl (2011) who argues for proactive measures when tackling aspects of privacy brought about by new IT systems to avoid costly, the 2020 enterprise would do well to heed ethical considerations at early stages of adapting and/or designing IS in their business practices. It will no longer be enough to view IS in the prism of efficient business for profit gains but to also consider the human impact if real efficiencies and submit profits are to be realised.

8. Governance recommendations

The IDEGOV project has showed that there clearly are problems in how ethical issues are dealt with in IS organizations. Some of these problems include but are not limited to:

- Lack of awareness of ethical issues
- Poor policy making
- Lack of consultation
- A lack of senior management buy-in
- Communication issues

The lack of awareness by IS professionals was clearly of concern. There was also considerable evidence of poor policy making, often due to a lack of consultation with

stakeholders, poor communication and a lack of feedback or consideration of existing policies which may be due to a lack of senior management buy-in. Education of both the profession and the public was also lacking, including the lack of training and awareness raising within organisations. There was a perception of technological determinism and powerlessness amongst several interviewees in that the development of cloud computing in particular was inevitable. The lack of take-up or even awareness of privacy enhancing technologies also indicates that self-regulation does not work well, so guidelines and legislation need to be clear and pervasive.

Therefore, in order to overcome and/or lessen the problems identified, IS enterprises need to take into consideration the following recommendations that the IDEGOV project has put together:

1. **Taking the context into account.**
The word context has many meanings. What does it mean? What do we have to think of, to take into account for a complete reflexive governance process?

- Implication of society :

-At the developing state and every step of any specific technological development project
-Have to imply stakeholder, and take into account that they are carrying values.
-Take into account actual acceptance, not just acceptability of IS.

- Particularity of the technology :

-Listing issues is a brake to reflexivity.
- Risk assessment is a brake to reflexivity.
- Cannot apply a governance theory by an exclusively top-down mechanism.
- Have to change the theories according to the context and particularity of the technologies

We must build governance theories that are adaptable, flexible[29] and comprehensive.

2. **Reflexivity and frame opening**
- We must implement a mechanism of reflection and justification about the basis and framework of an IS project at its first step, and that has to be done by every developer, in order to develop personal responsibility and a better understanding of the generality of a project and its actual aims from every stakeholder.
- Reconnect ethical and technological communities and in general avoid corporatist thinking. Social science cannot be presented as a foreign field to scientist and technology developers. Ethics cannot be presented as the enemy. The collaboration and the opening of one field to the other must start at the educational level.
- Use the narrative mechanism and the tendency to rely on experience as a way to open framings (this is already happening, but has to be systematised). Ethical reflexivity has to be embodied by the professional for it to work. It cannot be imposed from outside.

- Confront professionals with their own framings and presuppositions.

[29] This was of course the aim of proceduralism, but it has derived in too narrow and fixed procedure that were not any more able to deal with complexity; particularity, by a lack of flexibility that betrayed its own intention.

- Show the impact on society of technology development. What can we foresee, what is impossible to foresee, and in consequence, need constant vigilance?

- Show that technologies are not neutral, that they carry values. Responsibility cannot be only on the hand of the user. The possibility of a misuse is already an ethical issue.

- Show the advantages of constant ethical vigilance: for society, for the business (acceptation), to avoid disaster, to avoid bad publicity, etc. But the advantage of ethics cannot be the only incentive (or else, it would work perfectly now: awareness is not sufficient).

- Have to be ready to pay the price of ethics. Ethics cannot be a product, with a monetary value. It is a choice that a society has to take, and stick to. No matter how well designed ethical theories are, there must be a will behind their application. We have to give importance to ethics.

- We have to find ways to allow individuals, within projects and within any companies and organisation, to express ethical concern. (It is not sufficient for developers to be ethically driven and fully reflexive, they also must have a way to express their worries, no matter what source (values, personal experience, reason, …) those worries come from.

- Give tools to professional to express their view in a way that will be understood. How to pass from the value level to the normative level, in order to reach an agreement.

3. Simplify the procedures

- Base the procedures on personal reflexivity

- Base the procedures on discussion about norms, in an open framing (which allow any kind of discourse to be listen to, even if, as a secondary step, some view have to be reformulate, explained, reconstructed, to reach a normative level).

5. Necessity to show ethical constructions from the inside.

(For example, we cannot only say that narrative should have a place in norm construction, we also have to show why, and how it informs every day practice (cf. interviews) and how it informs the norms construction and the norms application anyway.)

- Show how narration, interpretation, argumentation and reconstruction have each a role on the norm construction process, and on the mechanism of application of the norms. (*Figure 4*)

- Show how the application of a norm cannot be a simple matter of compliance, but has to be reflexive and inform, as an active feedback, the process of norm construction. If application is not taken into account in norm construction, the norms will not be applicable, which does not only mean that they would be abstract and useless, but also invalid and not legitimate.

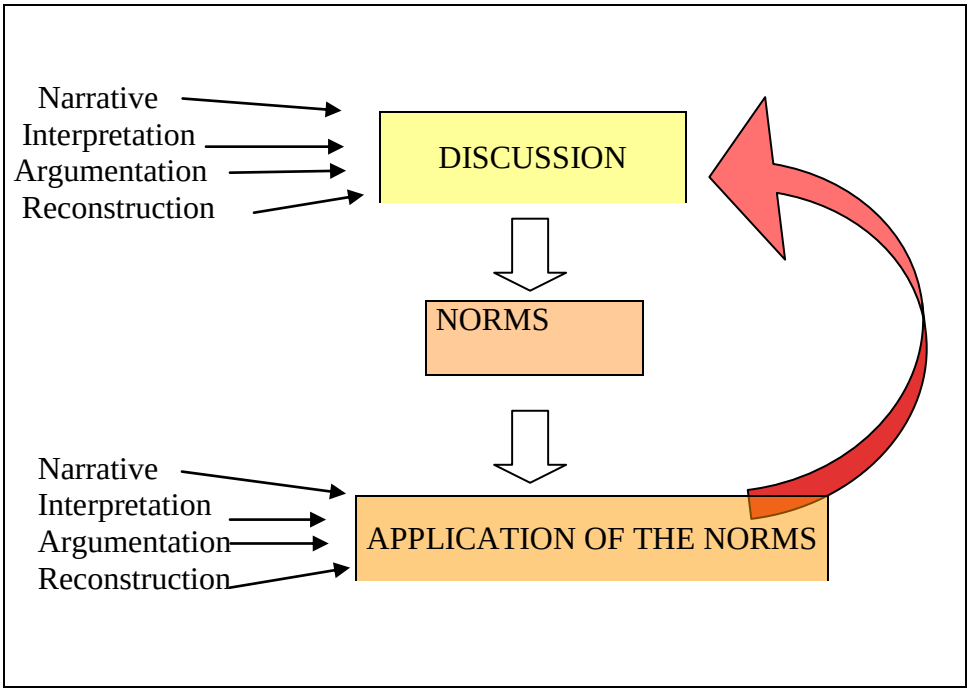


Figure 4. Integration of the register of discourse in norms construction and norms application

As we can see in *figure 4*, the mechanism of discussion is informed by 5 elements. Narrative, Interpretation, argumentation and reconstruction are inherent to any normative discourse, but there is also a mechanism of feedback from the application of the norm; which is to say that application of the norm informs its own construction. It is not a chronological order (it is not after coming up with the norm that they have to be tested on the field and then revised, which is the usual legal mechanism). The application informs the discussion about the norm from the beginning. In a sense it does not only inform the discussion, but also every element that informs the discussion (narrative, interpretation, argumentation and reconstruction), because every different form of discourse is "coloured" by a horizon of application. For the narrative, it would be the experience of other application, for the interpretation, it would be the frame in which a person see the world and make sense of it. The argument is informed by the application of the norm in a much ideal way: what is the aim, what is the better world possible, and reconstruction is the combination of the former, with a sense of reflexivity about them.

8.1 DRAWING THE RECOMMENDATIONS TOGETHER INTO SPECIFIC TARGET CATEGORIES

8.1.1 Recommendations for Policy Makers

- Clear regulatory framework
- Avoid ad-hoc implementation
- Actively consult stakeholders
- Employ experts
- Beware of multiple policies

By setting a clear regulatory framework policy makers within organisations will have clear guidelines for setting their own policies. This will avoid ad-hoc implementation and

conflicting policies. Further, consultation with stakeholders, including intra-organisational co-operation and knowledge sharing will also assist policy makers to formulate effective policy. Where there is a lack of expertise within an organisation, there should be the employment of experts in ethical decision making to enable evidence based policy. Further, policy makers should maintain and restrict the number of policies making it clear to employees and customers to reduce problems of compliance and conflicting requirements.

8.1.2 Recommendations for Organizations

- Clear escalation path for issues
- Specific ethical policies
- Consultation prior to implementation
- Robust internal systems for compliance

Organisations should provide clear escalation procedures and specific policies to deal with ethical issues. These should include recognised paths and guidelines for employees, whilst protecting whistleblowers from retribution. Where new technologies are being considered consultation with a range of experts in both the technical and ethical aspects as well as the business needs should be undertaken prior to implementation of those technologies. There should also be careful and systematic systems in place to ensure compliance with organizational policies and require practices.

8.1.3 Recommendations for IS Professionals

- Continuous education and personal development
- Raise awareness of the issues to others
- Take personal responsibility

IS professionals should engage in continuous education, and consider it important as a professional to raise their own and others awareness of potential ethical problems that may occur with the use of technology. Further, there needs to be greater education about the impact of what they develop to develop and understanding of the greater impact and therefore responsibility for what they produce and what their organisation does.

8.1.4 Recommendations for IS Professional Bodies

- Encourage wider participation and education
- Professional body collaboration
- Raise members awareness of ethical issues

IS professional bodies need to encourage wider participation through greater involvement in education, not only in schools and colleges, but through community outreach projects to raise awareness. They would also benefit from greater collaboration amongst the professional bodies themselves which could lead to a standardisation of codes of practice/conduct. Some bodies have a strong focus on chiefly technical issues and raising awareness of members through greater education and information from the body itself would assist in ethical technical development.

Conclusion

But if we say that the application of the norm inform the discourse and the different kind of discourse, the different motive of discourse, the opposite is also true : Narrative, Interpretation, argumentation and reconstruction also inform the application of the norm.

Our first step was to define the vocabulary, the methods, and the background theories and models that underlie the analyses and are the first step in the way up to the guidelines we give at the end of this rapport (see also deliverable 3.2). This first step was necessary to set up the problems and clarify the objectives and methods, but it also reflected the exigency of strong justification of our work, that is necessary to give every reader a full understanding of the context and the content of our work, to avoid ad hoc guidelines. Indeed, the guidelines that we gave at the end of the deliverable 3.2. depend strongly on the analyses that are preceding them. In that regard, it is both their strength and their weakness, because they cannot be applied without being understood. Hopefully, the content and the form of this project are carrying the same message, and follow the same exigencies. Indeed, the idea and the objective of our theory are to take into account more dimension of the human behaviour in order to ensure ethical governance in technological field. If ethical theories and technical developers take into account the same elements that inform the discussion, then the gap that was not allowing the use of governance strategies in technical fields will be erased.

Once every aspect of the analyses has been described and justified, we started the analysis of the interview from IS professionals. Our analyses are focused on governance, governance strategies and the parameters attached to it (link to society, level of the ideal solution, view of the impact of technologies and the responsibilities they involve, etc). They show that in the field of information system, there is a strong tendency to top-down and straightforward governance strategies. The only examples of discussion about ethical issues are done in committees, often not especially focused on ethics. The participant tends to rely directly both on their own personal experience and on the rules and procedures of their companies. The costumer is broadly considered as responsible of the good or bad use of technologies, which are seen as neutral.

With those results in mind, we talked our problematic by the other side, i.e. by the governance possibilities that ethical literature offers. Indeed, the interviews showed a lack of use of other governance strategy than ethical committees and straightforward hierarchy, as well as a gap between the decision level in a company and the day-to-day decision that relied mainly on personal experiences. So what are the possibilities available to improve the governance of information systems?

Most of the governance theories nowadays are informed by a philosophical trend called “proceduralism” and represented by Habermas and Rawls in various ways. That trend has shown some limits that the current theories have exploited to improve the ethical procedures. And from theses theories, have been implemented diverse actual governance strategies, such as ethical reviews, ethical committees, public consultation, expert panels etc. On all of those strategies, only one has been founded in our researches (ethical committees).

The combination of the empirical study (the interviews) with the theoretical exploration has shown a problem in the effective implementation of ethical theories and governance strategies. So we had to look for solutions –solutions that come directly from the blind points and presuppositions that we indicate throughout the analysis of the interviews and the

literature. The main problem is the lack of connection between the professionals who live in a particular context and have a particular set of values and experiences, and the norm making process.

In order to reduce the gap, we should find methods to evolve both the ethical procedure of norm construction and the ethical thinking of the professionals. Participation of the professional to the norm construction seems essential, but it cannot be only a purely rational, decontextualised participation, because it would risk being instrumentalised and ineffective. The information systems professionals and every stakeholder needs to realise the importance of ethical thinking, by measuring the impact a technology can have on a society and to be allow to use their own personal experiences, their values and everything that determine their judgment (we said broadly, following Ferry: narration, interpretation, argumentation and reconstruction) as argument in the process of norm construction. By doing that, the context of application of the norm will meet the context of construction of the norm, and the gap that made ethical functioning difficult will be in the good way to be reduced.

To summarize, our analyses showed:

- A lack of reflexivity from the IS professionals, especially on their own personal framing
- A strong tendency to reduce ethics to one single issue.
- A strong reliance on personal ethical thinking to take day-to-day decisions.
- The responsibilities of the misuse of technologies are very often put on the users' ignorance or bad intents.
- Limits in ethical governance theories that goes back to the procedural origins of current theories (the proceduralism of Habermas and Rawls).
- The presupposition in ethical theories that discussion to construct norm has to be abstract from personal context (value system, personal experience, etc.) of the participant, to focus on rational discussion.

We suggest that this state of affairs can be overcome by:

- Taking into account the context of the person in the process of norm construction: values and experience are the greatest incentive (as showed in the interviews), so ethical governance theories has to take them into account to be effective, and integrate it to the discussion by defusing it by relying on the fact that people a able to accept something that deny some of their values if they have been included in the discussion and decided upon (if some other value has to be decided prevalent for the sake of others, or if a rational argument has provided a better view, etc.).

- Opening the frames in which people are acting and thinking, and allow them to see from the inside the mechanism of norms construction, of ethical decision, and take a part in it. (One of the idea being that, if people rely on experience, we have to provide experiences to improve their understanding of the complexity and the concrete impacts of ethical decisions).

- Confronting individuals to their own presupposition and confronting them to others' views.

- Starting ethical thinking at the start of a project, before any ethical issues are actually raised, in order to make the entire process ethical. This also means that the people involved have to think about ethics, without referring to an external authority.

- Involving stakeholders, especially the users of the technology (in IS in particular, this aspect is missing, because the technology are often to be used internally, but it is even more important, in the sense that because the fact that the client is a company seems to defuse some of the basics ethical worries, which is not legitimate because it does not mean that there is no ethical issues for the users, even corporate users, and *a fortiori* that there is no indirect impact on society).

- Making ethical governance theories and their application process open and understandable to the stakeholders in the discussion on ethics.

- Including the problem of the application of the theory in the theory itself.

The results of our analysis include the entire process of our analysis, and the integrated method we have used. The governance advice has to be understood in the context of our discussion on the limits of current governance strategies, and the analyses of our empirical study. This is of course the reflection of one of our recommendations, which is to open the ethical governance theories to make their process of thinking available and understandable to everybody.

In addition, this study has considered the identification and governance of emerging technologies and considered these issues from the perspectives of IS professionals across the globe. A number of issues were raised and some differences were revealed about levels of concern and governance policies relating to ethical issues. These differences were particularly marked between the older and younger participants, and between developed, emerging and developing countries.

Governance issues were a particular focus of the study with elements of policy, practice, and implementation issues identified. Governance was distinctly variable across the organisations with some organizations perceived as having strong governance practices, and others having very little in the way of policy or structured practice including escalation steps to deal with identified issues. With regards to current and emerging technologies, it was noted that there was a perception that newer technologies were more of a concern in regards to privacy, surveillance, data protection and security than current ones. This appeared be more to do with familiarity with current technology than a real indication of threat. Knowledge sharing and management was of some concern, particularly in organisations that have a need to comply with legal obligations as this can make collaboration difficult. It was also evident that many of the organizations considered legal compliance to ensure ethical practices, however this may not be sufficient, particularly where regulation is not in step with technological developments creating a 'policy vacuum' (Moor 2006 p. 115).

With regards to geographical analysis, it was considered that in developing countries, there are difficulties in getting senior management to buy-in to the need to address ethical issues. Further, the lack of infrastructure means that there has been a growth in the use of mobile technologies and an interest in cloud computing to overcome this. However, there were considerable concerns about the security and privacy implications of cloud computing.

There were some differences in the awareness and perceived concerns about ethical issues across the two age groups examined. Older (and to some extent more senior) interviewees tended to be more aware of the issues than younger interviewees which may reflect their more likely involvement with policy making and so is actually a positive finding, although there were concerns that current education of IS professionals does not provide them with sufficient understanding of the social impact of technology. (Stoodley et al 2010)

Gender was also examined in order to find out if this was a concern to the interviewees. In many cases, interviewees indicated that there were relatively few IS professionals within their organisation, and yet often felt that there were no barriers to entering the field for women. One reason given for this was that IT as a career choice was not popular with women as it can be seen as a boring or geeky job. This view was also seen as embedded within the educational culture.

The identification and governance of emerging technologies was seen as being particularly related to the internal culture of an organisation and the need to comply with legal obligations. With this, the IDEGOV study has proposed several recommendations specifically targeted at policy makers, IS organizations themselves, IS professionals and IS bodies so that ethical issue considerations filter into these categories by specifically focusing on the areas that need to be worked on in order for there to be effective results in dealing with the identification and governance of potential emerging ethical issues in information systems.

References

Adam, A. 2000. "Gender and Computer Ethics". In: *ACM SIGCAS Computers and Society*, vol 30, issue 4, pp. 17-24.

Alter, S. (2008). Defining information systems as work systems: Implications for the IS field. *European Journal of Information Systems, 17*(5), 448-469

Bagchi, K. Kirs, P. *and* Cerveny, R. (2001) 'Global Software Piracy: Can economic factors alone explain the trend?' *Communications of the ACM June* 2006/Vol. 49, No. 6

Banerjee. S. B. (2008) 'Corporate Social Responsibility: The Good, the Bad and the Ugly.' *Critical Sociology* 2008; 34; 51Collins, W.R and Miller, K. W. (1992) 'Paramedic Ethics for Computer Professionals.' *Journal of Systems Software* 17:23-38

Benbasat, I. & Zmud, R.W. (2003) The identity crisis within the IS discipline: Defining and communicating the discipline's core properties, *MIS Quarterly, Management Information Systems*, 27: 183-194

Dwyer, C., Hiltz, R. S. & Passerini, K. (2007) Trust and privacy concern within social networking sites: A comparison of Facebook and MySpace. *Proceedings of the Thirteenth Americas Conference on Information Systems*, Keystone, Colorado August 09 - 12 2007

Edelenbos & Klijn (2004) 'Managing stakeholder involvement in decision-making: A comparative analysis of six interactive processes in The Netherlands' *Conference on Governance and Performance: organizational status, management capacity and public service* on 15-16 March 2004 in Birmingham (School of Public Policy University of Birmingham)

Gillan, S.L (2006) 'Recent Developments in Corporate Governance: An Overview.' *Journal of Corporate Finance* 12 (2006) 381– 402

Gillan, S.L., Starks, L.T., (1998). 'A survey of shareholder activism: motivation and empirical evidence.' *Contemporary Finance Digest 2* (3), 10– 34.

Gillis, S. (2004) *Neither Cyborg Nor Goddess: The (Im)Possibilities of Cyberfeminism,* in Third Wave Feminism: A Critical Exploration (ed.) S. Gillis, G. Howie & R. Munford. Basingstoke: Palgrave Macmillan. pp. 185-196

Gopal, R.D and Sanders, G.L (1998) 'International Software Piracy: An analysis of key issues and impacts' *Information Systems Research* 9 (4) 380-397

Harshman, E., Gilsinan, J.F., Fisher, J.E., and Yeager, J.E (2005) 'Professional Ethics in a Virtual World:The Impact of the Internet on Traditional Notions of Professionalism' *Journal of Business Ethics* (2005) 58: 227–236

Jones, A., Anton, L. & Earp, J. B. (2007) Towards understanding user perceptions of Authentication technologies. Proceedings of the 2007 ACM Workshop on Privacy in Electronic Society. Virginia : ACM.

Kashyap. R., Mir. R and Mir. A. (2011) 'Corporate Social Responsibility: A Call For Multidisciplinary Inquiry.' *Journal of Business & Economics Research* Volume 2, Number 7 51

Katzan, H. (2010) 'On The Privacy Of Cloud Computing' *International Journal of Management and Information Systems*; Second Quarter 2010; 14, 2

Laudon, J. P., & Laudon, K. C. (2008). *Management Information Systems: Managing the Digital Firm* (10th ed.). Pearson Education.

Leidner, D. and Kayworth, T. (2006) 'A review of culture in information systems research: toward a theory of information technology culture conflict.' *Mis Quarterly* Vol. 30 No. 2, pp. 357-399

Lyon, D. (2001) Facing the future: Seeking ethics for everyday surveillance. *Ethics and Information Technology* 3: 171–181, 2001

Lyon, D. (2002) Everyday Surveillance: Personal data and social classifications. *Information, Communication & Society* 5:2 2002 242–257

Meso. P., Musa. P., Mbarika. (2005) 'Towards a model of consumer use of mobile information and communication technology in LDCs: the case of sub-Saharan Africa.' *Information Systems Journal* **15**, 119–146 Blackwell

Moor, J.H (2005) 'Why we need better ethics for emerging technologies' *Ethics and Information Technology*. 7:111–119

Peissl, W. (2011) Responsible research and innovation in ICT: The case of privacy in von Schomberg, R. (2011) (ed). Towards Responsible Research and Innovation in the Information and Communication Technologies and Security Technologies Fields. A Report from the European Commission Services, EC.

von Schomberg, R. (2011) (ed). Towards Responsible Research and Innovation in the Information and Communication Technologies and Security Technologies Fields. A Report from the European Commission Services, EC.

QSR international (2012) http://www.qsrinternational.com/default.aspx

Venable, J. R., Preis-Heje, J., Bunker, D. & Russo, N. L. (2011) Design and Diffusion of Systmes for Human Benefit: Towards more humanistic realization of information systems in society. *Information Technology & People*, 24: 3, 208-216, 2011

Ramgovind S., Eloff M.M., Smith E (2010) 'The Management of Security in Cloud Computing' *Information Security for South Africa (ISSA)*, 2010 2-4 Aug. 2010

Solove, D.J (2001) 'Privacy and Power: Computer Databases and Metaphors for Information Privacy' *Stanford Law Review*, Vol. 53, No. 6 (Jul., 2001), pp. 1393-1462

Spence, L. (1999) 'Does size matter? The state of the art in small business ethics.' *Business Ethics: A European Review*. Vol. 8 No. 3, pp. 163-72.

Stoodley, I., Bruce, C. and Edwards, S. (2010) 'Expanding ethical vistas of IT professionals.' *Information Systems Frontiers.* 12 (4). pp. 379-387.

Sweeney, L. (2007) ‘Corporate social responsibility in Ireland: barriers and opportunities experienced by SMEs when undertaking CSR.’ *Corporate Governance.* pp. 516-523. Emerald Group Publishing Limited.

Tavani, T. H. (1999) Informational privacy, data mining, and the Internet, Ethics and Information Technology 1: 137–145, 1999

von Schomberg, R. (2011) (ed). Towards Responsible Research and Innovation in the Information and Communication Technologies and Security Technologies Fields. A Report from the European Commission Services, EC.

Westin, A. (1968) *Privacy and Freedom*, 25 Wash. & Lee L. Rev. 166, http://scholarlycommons.law.wlu.edu/wlulr/vol25/iss1/20 (Accessed 30/07/12)

Westin, A. (2003) ‘Social and Political Dimensions of Privacy’ *Journal of Social Issues* Vol 59 (2) pp. 431-453

Appendices

Appendix 1: Questionnaire survey and Interview Schedule

1. Questionnaire Survey

1. Gender: Male; Female
2. Age: under 21, 21 – 30; 31 – 40; 41 – 50; 51 – 60; Over 60
3. Level of education e.g. High school, College, University, Other (specify)
4. Education qualifications
5. Organization type you work for e.g. government; private; Other (specify)
6. What sort of technological business/field is your organization involved in?
7. How big is the organization, i.e. number of employees
8. Does your organization have a website?
    a. If Yes, what is the website address?
9. Position in Organization
    a. Management
    b. Analyst
    c. Technical support
    d. Programmer
    e. Other (specify)
10. How long have you been in this position?
11. Status in the organization?
    a. Permanent
    b. Contractual, how long?
    c. Consultant
    d. Part time
    e. Other (specify)
12. How long have you been in this organization?
    a. <1 year
    b. 1 - <5 years
    c. 5 - <10 years
    d. 10 - <15 years
    e. more than15 years
13. How much experience do you have in your field of work?
14. What are your personal values and beliefs
15. What are your professional values and beliefs
16. What are your organizations values and beliefs
    a. If any, are they followed through by the organization?
17. Country where you work and where your organization is based
18. Do you use social media on a personal level?
    a) Never
    b) Sometimes
    c) Regularly
19. If you use social media, do you sometimes access from your workplace?
    a) Never
    b) Sometimes
    c) Regularly
20. If you use social media, are you allowed to access from your workplace?

a) Yes
b) No

21. Does your organization use social media as part of doing business?
    a) Never
    b) Sometimes
    c) Regularly

The interviews on the other hand, expanded on the survey findings and were devised in order to get more detailed information with the following questions:

2.Interview Schedule

On Current Technologies

1. What type of IS/technologies does your organization currently make use of?
2. What are they used for?

Ethics of Current Technologies

1. Do you think there are any issues of concern related to current technologies?
2. What are these issues and why have you identified them as such?

Emerging Technologies

1. What new and emerging technologies are you aware of?
2. What application areas do you think they can and will be used for?

On Ethics of Emerging Technologies

1. Do you think there are any issues of concern related to new and emerging technologies?
2. What are these issues and why have you identified them as such?

On Governance

1. How did you determine them to be an issue:
    a. Current Technologies
    b. New and Emerging Technologies
2. Why are they of concern?
3. How are current and new issues addressed?
4. Why are they addressed in this way?
5. Who is responsible for identifying and addressing the issues?
6. To what extent do you feel some responsibility towards these issues (e.g. moral, professional)
7. What is the extent and/limitation of your responsibility?
8. Why?
9. How do you propose ethical issues might be rectified?

On Social Media

1. Does your organization use social media?
    a. If No, why not?
    b. If yes, what is its aim and who is tasked to use it internally?
2. Does your organization have a policy regarding the use of social media?
    c. If it has, what is the aim and what are the main points of this policy?

a) If it doesn't, does it have any intention of having one and should they adopt a policy on that?

3. Do you think there could be ethical issues related to social media on both a personal and organizational level?
   a) If Yes, what might these issues be and why would they be issues?
4. If there may be ethical issues, what should the organization do to address the issues?

On Gender

1. Do you think gender matters when it comes to emerging technologies and ethics? If so, why? If not, why not?
2. How many female IT professionals do you approximate are in your organization?
3. How many female employees do you approximate are decision makers?

Appendix 2: Invitation to research participants

Dear Information Systems Professionals

We are working on a CIGREF funded project called IDEGOV which stands for Identification and governance of emerging ethical issues in information systems. IDEGOV is a De Montfort University and University of Namur project. As the name of the project suggests, the project's main aim is the investigation of emerging ethical issues in information systems as well as to look at and assess related governance issues. We are currently collecting data on the subject and would like to ask you to participate in this process by filling out the attached questionnaire survey below. The main objective is to get your views, perceptions and experiences on:

1. Current and Emerging technologies
2. Ethics
3. Governance
4. Social networking media
5. Gender

As an information systems professional and practitioner, we believe that your knowledge, views as well as experience on the above issues are important in informing IDEGOV's research findings which will be central to meeting the aim of the project. Your participation in this study is entirely voluntary. This questionnaire survey is a first of a two part data collection strategy. After filling out this questionnaire which should take about 5 minutes or less to complete, participants are invited to take part in a more in-depth interview where we hope we can discuss in more detail aspects arising from the questionnaire and other related topics. The interview which will be conducted via skype or telephone call will be no more than 30 minutes and will be audio recorded to aid with subsequent transcription and analysis. The data collected will be looked at by individuals from De Montfort University in the UK and its collaborating partner, University of Namur in Belgium, who as indicated earlier are part of the IDEGOV research team. Any recordings made, or transcripts from recordings will be confidential to the research participants and members of the research team at De Montfort University and their collaborating partner. Neither De Montfort University nor their collaborating partner will use the data or transcripts for any other purpose than the study describes. In addition, the data collected and recordings will be kept at De Montfort University.

The information you provide is confidential, except that with your permission anonymised quotes may be used. If you request confidentiality, beyond anonymised quotes, information you provide will be treated only as a source of background information, alongside literature-based research and discussions with others.

Your name or any other personal identifying information will not appear in any publications resulting from the questionnaire or subsequent interview; neither will there be anything to identify your place of work.

The information gained from the questionnaire and interview will only be used for the above objectives, will not be used for any other purpose and will not be recorded in excess of what is required for the research. Even though the study findings will be published in international

conferences and journals, only the research team will have access to the data itself. There are no known or anticipated risks to you as a participant in this study. Please note that the interview and all other related work of the project will be in English.

If you have any questions regarding this study or would like additional information please ask the researcher before you fill out the questionnaire or when undertaking the interview, during, or after the interview. You may contact Prof. Bernd Stahl (bstahl@dmu.ac.uk) or Dr. Kutoma J. Wakunuma (kutoma@dmu.ac.uk) for any other issues related to the study.

By filling in this questionnaire survey you indicate that you understand its purpose and consent to the use of the data as indicated above. Thank you for your cooperation.

Prof. Bernd Stahl, on behalf of the IDEGOV Project