

Association for Information Systems
AIS Electronic Library (AISeL)

AMCIS 2012 Proceedings

Proceedings

Information Technology Codes of Ethics: An Analysis Proposal

Hajer Kefi

University Paris Descartes Sorbonne Paris Cité, Paris, France., hajer.kefi@parisdescartes.fr

Follow this and additional works at: <http://aisel.aisnet.org/amcis2012>

Recommended Citation

Kefi, Hajer, "Information Technology Codes of Ethics: An Analysis Proposal" (2012). *AMCIS 2012 Proceedings*. 6.
<http://aisel.aisnet.org/amcis2012/proceedings/PerspectivesIS/6>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2012 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Information Technology Codes of Ethics: An Analysis Proposal

Hajer Kefi

CEDAG (EA 1516) University Paris Descartes
Sorbonne Paris Cité
hajer.kefi@parisdescartes.fr

Lamine Sarr

CEDAG (EA 1516) University Paris Descartes
Sorbonne Paris Cité
lamine.sarr@gmail.com

ABSTRACT

In this paper, we propose a framework to systematically analyze the structural form and thematic content of codes of ethics related to Information and Communication Technology (ICT codes of ethics). Then we apply this framework, within a sample of 30 organizations. Our purpose is to assess the organizational ethical positioning advocated by these ICT codes of ethics, using an adaptation of Kohlberg's cognitive moral development theory (CMD). Our results indicate that a majority of the organizations studied adopt an ICT code which refers to the conventional level of CMD. The implications of our study for research and practice are discussed.

Keywords

Ethics and ICT, ethical theories, ICT codes of ethics, Theory of cognitive moral development, classification scheme.

INTRODUCTION

The pervasive use of Information and Communication Technology (ICT) potentially raises an open-ended range of ethical considerations comprising, to cite a few, identity abuse, property theft, loss of privacy, and hacking. Those considerations are handled by the Information Systems (IS) literature within a research stream called Computer ethics or more recently Information ethics (we will consider these terms as interchangeable, Mingers and Walsham, 2010). Sarbanes-Oxley Act (2002) in the United-States provides a good illustration of the increasing interest to this topic. In this study, we propose particularly to focus on codes of ethics related to ICT and aim to address the following research question: *How could ICT codes of ethics reflect the organizational ethical behavior regarding Information technology?*

We use Kohlberg's (1969, 1981) theory of Cognitive Moral Development (CMD), which we extend to the organizational level of analysis, following Sridhar and Camburn (1993). We then apply and adapt the classification scheme - originally developed by Gaumnitz and Lere (2004) to examine business codes of ethics - to ICT codes of ethics. This study is significant because it contributes to filling a gap within the IS research in which ethical issues still require a theoretical and empirical focus (Walsham, 1996). Understanding organizational ethical behavior is also critical, given that previous studies have almost exclusively concentrated on ICT ethics at the individual level (Davison et al., 2009). We are not aware neither of an extended number of studies of ICT ethical codes within the mainstream of Information Systems journals.

Our paper is organized as follows. We first develop the theoretical underpinnings of our study, rooted in the philosophical, psycho sociological and managerial theories of ethics and how they could be articulated within the IS literature. We then explain our methodology and present our principal findings before concluding.

THEORETICAL FOUNDATIONS

Ethics and Philosophy

A study on ethics cannot do without a discussion of the philosophical ethical underpinnings. Traditionally, there are at least three main streams: consequentialist ethics, deontological ethics and virtue ethics (Mingers and Walsham, 2010). The two first schools are act-centered in that they focus on how one should act ethically. The third line of thought is actor-centered because it is interested in "being" rather than "doing" (Chatterjee and Sarkar, 2010). The main fundamental distinction between the act-centered traditions is whether an act could be judged in terms of the consequences it produces or in terms of its intrinsic characteristics.

Consequentialism (teleology) posits that an act is deemed ethical (i.e. good) if it maximizes the overall benefit (*versus* minimizes the overall harm) it may cause. This position has been developed by Bentham (1789/1970) and Mill (1861/1979)

for whom goodness is assessed in terms of pleasure and harm in terms of pain, settling down thereby the Hedonism perspective of ethics. Later consequentialists (Moore, 1903/1959) included non-hedonistic outcomes, like social welfare and utility, which have been largely echoed by the economic theory.

Within business practices, the consequentialist view is well established, and we still refer to A. Smith to put forward utilitarian ethics: *“By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it”* (A. Smith, 1776).

The deontological school of ethics is focused on what the act intrinsically is, rather on its consequences. An act is just and fair if it is in accordance with moral rules. Those rules are established for the individual in terms of categorical imperatives (i.e. duties), according to the prominent theorist Kant (1785/1991). They have been more recently transposed to the societal level, and concern rules that govern people as a whole. The theory of justice developed by Rawls (1971) is a salient approach within this stream of deontological ethics. It has nevertheless been criticized, especially from a Habermasian perspective because it *“presumes too much commonality of agreement across communities”* (Habermas, 1996, cited in Mingers and Walsham, 2010). Habermas, through the lens of his theory of communicative action, posits contrastingly that agreement within communities could be more plausibly reached through rational discussion and debate, as opposed to religious or traditional dogmas. The Habermasian discourse ethics is therefore deontological in nature and confirms both to individuals and groups. We argue, following Mingers and Walsham (2010), that discourse ethics is well suited to the actual ethical issues as they raise within organizations. Moreover, it provides also a pertinent rationale to our research approach; codes of ethics being subject to debate between decision makers and those affected by decisions, not only when codes are developed but also when and how they are applied.

In terms of business ethics, the deontological view is sustaining the theory of corporate agency by reformulating the Rawlsian Social Contract into an integrative social contract theory; *“the social contract theory asserts that all businesses are ethically obligated to enhance the welfare of society by satisfying consumer and employee interests without violating any of the general canons of justice”* (Donaldson, 1982). There are also the stakeholders theories considered fundamentally as normative (Hasnas, 1998).

The third philosophical line of thought, called virtue ethics, is rooted in Aristotle works on human virtues, such as courage, prudence, temperance, generosity, etc. The focus here is put on how one could be a good agent, rather on how s/he could commit good acts. A “virtuous” actor could be from another perspective an individual (Solomon, 1992) or an organization; a firm or a community of practice for example (Moore and Beadle, 2006). Virtue ethics could therefore provide support to the legitimacy to study organizational ethical behavior, especially with regard to ICT use.

Information Ethics

Following Bynum (2011), computer and information ethics are referred to as the branch of applied ethics which studies and analyzes social and ethical impacts of ICT. Wiener is recognized as the founder of this field, even though his work developed during the 1940s besides his seminal theory of cybernetics, has been totally ignored during decades.

In the 1970s and 1980s computer ethics was recreated. Maner (1980) was the first who clearly defined the term “computer ethics” as the field of study that examines *“ethical problems aggravated, transformed or created by computer technology”*. The next significant turning point was Moor’s article *“What Is Computer Ethics?”* (1985), in which he argues that computer technology is revolutionary because it is logically malleable: *“Computers are logically malleable in that they can be shaped and modeled to do any activity that can be characterized in terms of inputs, outputs and connecting logical operations. . . . Because logic applies everywhere, the potential applications of computer technology appear limitless”* (Moor, 1985, p.266). At the same period, Mason (1986) has made a valuable contribution by defining four ethical concerns; privacy, integrity, intellectual property and accessibility.

In the 1990s, more attention has been paid to professional ethics in order to settle down standards of good practice and codes of conduct for computing professionals. These are defined by Gotterbarn, one of the co-authors of the 1992 version of the ACM Code of Ethics as *“anyone involved in the design and development of computer artifacts”* (Gotterbarn, 1991). The era of ICT codes of ethics has emerged and had since that time to cover an increasing number of issues (De George, 2003) including the digital divide and many challenges related to Internet and to the web 2.0, like security/privacy or freedom/censorship, which have been more specifically referred to as Cyberethics or Internet ethics.

The number of actors involved within these ethical codes has also extended, including members of open source software developers communities and users. Diffusing ICT Codes of ethics has moreover become a wide spread phenomenon within organizations.

Theory of cognitive moral development

Psycho-sociologists argue that people will behave more or less in ethical ways depending upon their ability to make reasoned moral judgments. This ability is supposed to evolve in identifiable stages according to the theory of cognitive moral development (CMD) established by Kohlberg (1969, 1981). This theory has largely been applied in business ethics literature (Snell, 2000) and more recently in computer and information ethics (Davison et al., 2009). CMD is built as a hierarchy of three levels and six stages:

- Preconventional level: (1) Punishment and Obedience Orientation stage– the act is assessed in terms of its physical consequences; and (2) Instrument and Relativity Orientation stage – a right act serves as an instrument for satisfying the proper needs of the actor and those for whom s/he cares.
- Conventional level: (3) Interpersonal Concordance Orientation stage – a good act depends on the expectations of those for whom one feels loyalty and affection ; (4) Law and Order Orientation stage – Loyalty here is addressed to the whole society, a good act conforms then to established rules and laws.
- Post-conventional level: (5) Social Contract Orientation stage– the person copes with the conflicting views and opinions of other people and is in search of consensus, agreement and contract ; (6) Universal Ethical Principles stage – at this final stage, a good act is assessed in terms of moral principles chosen by the person because of their consistency and universality.

An abundant literature has provided conceptual and empirical support to Kohlberg’s model. It has also been subjected to criticisms including its deterministic, unidirectional and linear scheme to achieve ethical maturity; and its inference methodology using only interviews with young males (Fraedrich et al., 1994; Davison et al., 2009).

Originally developed at the individual level, The CMD model has afterwards been extended to the organizational one. Sridhar and Camburn (1993) argue that this analytical shift is contingent on the concept of corporate learning defined by organizational theorists as a process in which the organization as a whole (and not its members individually) is explicitly or implicitly engaged to encode its historical inferences into routines and procedures (Levitt and March, 1988). Organizations are therefore willing to go through different stages of moral development: “*organizations are not mere abstract legal entities but collectivities of individuals with shared meanings, shared language, and shared rationale. Depending on the level of sophistication, it should be possible to infer the moral and ethical development of organizations*” (Sridhar and Camburn, 1993).

Reindenbach and Robin (1991) propose to put the focus on corporate culture and its role within the moral development of a corporation and argue that unlike individuals in the CMD Kohlberg’s model, the organizations do not have to evolve step by step to reach a final development stage (stage 6), but could switch directly from stage 1 to stage 5 and vice versa. Logsdon and Yuthas (1997) propose to reformulate the levels of organizational moral development by relating them to different stakeholder orientations in order to achieve corporate social performance.

Among this body of research, a consensus has emerged to assess the cognitive moral development of organizations (CMDO) using a six-stage model (paralleling Kohlberg’s CMD): (1) Avoiding harm to one’s own organization; (2) Gaining benefits for one’s own organization; (3) Conforming to norms/practices of the industry; (4) Conforming to existing laws and regulations; (5) Recognizing obligations to society; (6) Upholding universal principles. Organized also into three levels: pre-conventional (stages 1-2), conventional (stages 3-4) and post-conventional (stages 5-6).

While the CMD has been largely used within the IS literature, mainly to assess the integrity of IT professionals at the individual level (Davidson et al., 2009), in this study, we propose to apply and extend the CMDO to the area of Information Technology through the lens of ICT codes of ethics adopted within organizations.

METHODOLOGY AND FINDINGS

In this section, we first present the classification scheme we adopt in analyzing ICT codes of ethics, our sample, the analyses we have conducted and finally our major findings.

Classification scheme for ICT codes of ethics

Many researchers have elaborated general methodologies to systematically analyze and compare the content of business ethical codes (Lefebvre and Singh, 1992; Jamal and Bowie, 2002). In this study, we adapt the well established classification scheme of Gaumnitz and Lere (2004) to the ICT field. This scheme uses six important dimensions to distinguish among codes of ethics: length, focus, level of detail, shape, thematic content, and tone (see below table 1).

Dimension	Description and metrics
1. LENGTH STATEMENTS	Number of statements contained in the code of ethics. STATEMENTS are the building blocks of the code. Each statement represents a separate idea or requirement.
2. FOCUS (Breath)	Number of themes addressed. Codes with few themes are focused. Codes with many themes are broad. Extreme examples are referred to as “vertical” and “horizontal” codes.
3. LEVEL OF DETAIL	Average or mean number of statements per theme. A higher (<i>versus</i> lower) mean corresponds to a greater (<i>versus</i> lesser) level of detail.
4. SHAPE	Represents or captures the details of the distribution of statements across themes.
5. THEMATIC CONTENT	Characterizes the aspects common (or categories) to the statements that comprise each theme.
6. TONE	Composite emotional reaction to and subjective impression of a code of ethics. Measured by statement which are: Directing <i>versus</i> Prospecting; Incentive <i>versus</i> Proscriptive; Positive <i>versus</i> Negative...

**Table 1. Classification scheme of codes of ethics
(adapted from Gaumnitz and Lere, 2004, p. 333)**

The first dimension is about the ICT codes’ length which we assess by ranking the number of statements or ideas within each code. The number of statements does not necessarily correspond to the number of sentences. The focus (or recurrence) is about the number of themes. The level of detail refers to the number of statements by theme.

The shape dimension is useful to examine the overall structure of each code and then to compare between codes structures.

The Fifth dimension (thematic content) requires an extensive attention because it is specific to the ICT domain, unlike the other dimensions which are common to all ethical codes. Content analysis could be processed using exploratory techniques, by for example identifying, enumerating and categorizing all the themes contained in the codes. We can also use an a priori analytical grid using the ICT ethical themes most frequently cited in the literature. In this study, we have chosen the exploratory solution.

The sixth dimension is used to determine the general tone of the code by examining how statements are formulated. For example the tone could be directing or prohibiting depending upon the importance of obligations compared to prohibitions.

Sample

Our study has been conducted in France, where we have noticed, at an earlier exploratory stage of our research, that the organizations where ICT codes of ethics are adopted are mainly large and leading companies, software engineering companies, financial and services companies, public administrations, Education and research organizations and non-profit organizations. Our research sample is composed of 30 organizations representing these categories, as explained in table 2. All these organizations are established in France but many of them have international activities. All the codes analyzed are written in French.

Leading Groups	LeadCOM1(Airlines); LeadCOM2 (Energy) ; LeadCOM3 (Airways)
IT & Software Engineering sector	ITCOM1 ; ITCOM2 ; ITCOM3 ; ITCOM4
Services (finance & consulting)	SERV1 ; SERV2
Public Administrations	AD1 ; AD2 ; AD3 ; AD4 ; AD5
Non Profit organizations	NPO1 ; NPO2 ; NPO3 ; NPO4 ; NPO5 ; NPO6 ; NPO7
Education & Research organizations	EDUC1 ; EDUC2 ; EDUC3 ; EDUC4 ; EDUC5 ; EDUC6 ; EDUC7 ; EDUC8 ; EDUC9

Table 2. Research sample

Analyses and Findings

We have organized and processed our data using QSR NVIVO.9. Our analytical methodology has followed five steps.

We have started by a descriptive analysis using the dimensions 1, 2, 3, 4 and 6 of Gaumnitz and Lere classification (table 3).

Then, we have focused on dimension 2 (thematic content) and identified all the emergent themes which have been afterwards ranked into three categories: obligations, prohibitions and principles of use (table 4). Following here the rationale of considering that the fundamental purpose of codes of ethics is to establish rules of conduct through the enactment of various obligations, prohibitions and principles of use (Gaumnitz and Lere, 2004).

The third step is to allocate and classify all those themes within the different stages of the organizational moral development according to the CMDO theory (Table 5). For example, stage 1: “*Avoiding harm to one’s own organization*” corresponds, just to cite a few, to the themes: control and monitor, secure use, preserve software, equipment and system performance, etc.

And finally, we have identified the cognitive moral development stage to which each ICT code refers to, depending upon the ranking of their different themes within the six stages of the CMDO model (Table 6).

	Length	Focus	Level of detail	Shape	Tone
LeadCOM1	87 statements (4 pages)	18 themes	4,8 statements/theme	5 sections	Directing, positive
LeadCOM2	175 statements (20 pages)	26 themes	6,73 statements/theme	7 sections	Incentive
LeadCOM3	124 statements (12 pages)	25 themes	4,96 statements/theme	8 sections	Directing, proscriptive
ITCOM1	102 statements (6 pages)	20 themes	5,1 statements/theme	16 sections	Directing, positive
ITCOM2	57 statements	12 themes	4,75	8 sections	Directing,

	(4 pages)		statements/theme		positive
ITCOM3	75 statements (5 pages)	16 themes	4,6 statements/theme	6 sections	Directing, proscriptive
ITCOM4	98 statements (6 pages)	22 themes	4,45 statements/theme	11 sections	Directing, incentive
SERV1	83 statements (6 pages)	25 themes	3,32 statements/theme	4 sections	Directing, positive
SERV2	89 statements (6 pages)	18 themes	4,04 statements/theme	3 sections	Directing and incentive
AD1	109 statements (pages)	18 themes	6,05 statements/theme	6 sections	Directing and proscriptive
AD2	122 statements (6 pages)	17 themes	7,15 statements/theme	6 sections	Directing
AD3	63 statements (11 pages)	14 themes	4,5 statements/theme	6 sections	Incentive
AD4	63 statements (5 pages)	14 themes	4,5 statements/theme	11 sections	Directing, incentive
AD5	137 statements (12 pages)	19 themes	7,21 statements/theme	6 sections	Directing, incentive
NPO1	32 statements (3 pages)	11 themes	2,9 statements/theme	4 sections	Directing,
NPO2	127 statements (6 pages)	17 themes	7,47 statements/theme	6 sections	Directing, proscriptive
NPO3	71 statements (5 pages)	13 themes	5,46 statements/theme	7 sections	Directing
NPO4	85 statements (8 pages)	18 themes	4,77 statements/theme	7 sections	Directing, incentive
NPO5	42 statements (2 pages)	15 themes	2,8 statements/theme	9 sections	Directing
NPO6	75 statements (4 pages)	16 themes	4,68 statements/theme	6 sections	Directing and incentive
NPO7	47 statements (4 pages)	20 themes	2,35 statements/theme	7 sections	Directing, proscriptive
EDUC1	69 statements (3 pages)	20 themes	3,45 statements/theme	10 sections	Directing, proscriptive
EDUC2	110 statements (10 pages)	21 themes	5,23 statements/theme	4 sections	Directing
EDUC3	104 statements (6 pages)	21 themes	4,95 statements/theme	7 sections	Directing, proscriptive
EDUC4	174 statements (9 pages)	19 themes	9,15 statements/theme	7 sections	Directing, incentive
EDUC5	99 statements (2 pages)	13 themes	7,6 statements/theme	11 sections	Directing, positive
EDUC6	105 statements (4 pages)	16 themes	6,5 statements/theme	4 chapters (21 sections)	Directing, incentive
EDUC7	86 statements (6 pages)	20 themes	4,3 statements/theme	9 sections	Directing, incentive
EDUC8	64 statements (4 pages)	18 themes	3,44 statements/theme	10 sections	Directing, proscriptive
EDUC9	159 statements (11 pages)	23 themes	6,91 statements/theme	7 sections	Directing, incentive

Table 3. Descriptive analysis of ICT codes of ethics

To focus on the fifth dimension (thematic content), we started by simple coding, and then by axial coding of data (Huberman and Miles, 1991; Elliott and Lazenbatt, 2005). We first identified and labeled emergent concepts into themes, we then grouped similar themes into categories. 32 themes have been identified and grouped into 3 categories: the “good” behaviors (“ought-to-do” actions); the “bad” behaviors (“ought-to-avoid” actions); and the moral values and general principles of use (see table 4).

Categories	Themes
“Ought-to-do” behaviors toward ICT	Respect established law (1+) ¹ , respect company’s policy and rules (2+), Preserve software, equipment and system performance (3+), Professional use (4+), adequate use (5+), proper use (6+), protect information (7+), Preserve privacy (8+), Control and monitor (9+), Protect intellectual property (10+), preserve confidentiality (11+), secure use(12+)
“Ought-to-avoid” behaviors toward ICT	access unauthorized accounts, software or data (1-) ² , Disclose information (2-), download inappropriate resources (3-), commit cybercriminal acts (4-), alter resources (5-), Post or transmit inappropriate data (6-), misuse (7-), involve within harmful devices (8-)
General principles of use	Wisdom (P1) ³ , reliability (P2), caution (P3), trust (P4), respect (P5), dignity (P6), autonomy (P7), common sense (P8), carefulness (P9), discretion (P10), transparency (P11), sanction/reward (P12)

Table 4. Content analysis categories and themes

We have afterwards recategorized these themes using the CMDO model, by incorporating each theme within one of the six stages of the model. The two authors of this paper have proceeded this way separately, and then confronted their findings. The degree of concordance obtained is near to 80% (see table 5).

The next step of the analysis consisted of going back to the FOCUS dimension of each ICT code of ethics (table 3), and assess the distribution of themes according to the CMDO categorization (table 5). This is how eventually we have identified to which stage, respectively, each single ICT code of ethics we have analyzed refers to. For example, if a code has a majority of themes belonging to stage 2, it will refer to the pre conventional level of cognitive development (stage 2). We summarize the classification of our sample in table 6.

¹ “+” correspond to obligations

² “-” correspond to prohibitions

³ “P” correspond to principles of use

Cognitive development stages		Themes
Pre-Conventional level	Stage 1: Avoiding harm to one’s own organization	Preserve software, equipment and system performance (3+), (shall not/) access unauthorized accounts, software or data (1-), (shall not/) disclose information (2-), secure use (12+), (shall not) alter resources (5-), Control and monitor (9+), sanction/reward (P12)
	Stage 2: Gaining benefits for one’s own organization	Protect intellectual property (10+), (shall not/) download inappropriate resources (3-), protect information (7+), common sense (P8),
Conventional level	Stage 3 : Conforming to norms/practices of the industry	Professional use (4+), Respect company’s policy and rules (2+), preserve confidentiality (11+), caution (P3), carefulness (P9)
	Stage 4: Conforming to existing laws and regulations	Respect established law (1+), adequate use (5+), proper use (6+), reliability (P2), (shall not) commit cybercriminal acts (4-)
Post-Conventional level	Stage 5: Recognizing obligations to society	Preserve privacy (8+), respect (P5), transparency (P11), (shall not/) involve within harmful devices (8-), (shall not/) misuse, (shall not/) Post or transmit inappropriate data (6-)
	Stage 6: Upholding universal principles	Wisdom (P1), trust (P4), dignity (P6), autonomy (P7), discretion (P10)

Table 5. Themes categorization through the CMDO model

The next step of the analysis consisted of going back to the FOCUS dimension of each ICT code of ethics (table 3), and assess the distribution of themes according to the CMDO categorization (table 5). This is how eventually we have identified to which stage, respectively, each single ICT code of ethics we have analyzed refers to. For example, if a code has a majority of themes belonging to stage 2, it will refer to the pre conventional level of cognitive development (stage 2). We summarize the classification of our sample in table 6.

Cognitive development stages		Organizations
Pre-Conventional level (23%)	<u>Stage 1</u> : (6,6%)	ITCOM2, NPO3
	<u>Stage 2</u> : (16,6%)	ITCOM3, AD1, AD2, AD3, AD4
Conventional level (60%)	<u>Stage 3</u> : (6,6%)	ITCOM1, SERV2
	<u>Stage 4</u> : (53,3%)	LeadCOM1, LeadCOM3, SERV1, ITCOM4, AD5, EDUC2, NPO2, NPO4, NPO5, NPO6, NPO7, EDUC3, EDUC4, EDUC5, EDUC6, EDUC8
Post-Conventional level (17%)	<u>Stage 5</u> : (13,3%)	EDUC1, NPO1, EDUC7, EDUC9
	<u>Stage 6</u> : (3,3%)	LeadCOM2

Table 6. CMDO Classification of our sample

CONCLUSION

The data analyzed above indicate that the CMDO theory adapted from Kohlberg's CMD and applied in the organizations could be used to identify the cognitive moral development advocated by the ICT codes of ethics in effect within these organizations. We have classified our sample (30 organizations) according to the cognitive development stage to which their respective ICT codes of ethics refer to and found that more than 70 percent of the organizations seem to be assigned a stage 4 or above moral development; 17 percent belong to the post-conventional level. Our data suggest also that the organizations' activity (or sector) does not seem to play any significant role within this classification. All the sectors are represented in stage 4, whereas we can find non profit organizations in the lower stages (stage 1) and large and leading business firms in the higher ones. This finding is important and contradicts those who posit that business and ethics are inherently antonyms. We have noticed also that a majority of the IT companies studied belong to lower stages (1 to 3). Our research being exploratory, all these findings have emerged from our data and certainly require a more extended investigation, within other research settings and using quantitative research techniques for example. One of the limitations of this study could be the lack in further justifying and interpreting some of these findings.

The Gaumnitz and Lere (2004) scheme has also efficiently been applied to concisely summarize the structural form and thematic emphasis of ICT codes of ethics. It constitutes therefore a powerful descriptive, analytical and comparative tool which can be generalized to study ICT codes of ethics, in order for practitioners for example to know how to develop these communicative rather coercive tools, and improve their applicability (Introna, 2002).

We think also that it is important to understand the theoretical underpinnings of ethical codes. The content analysis we have conducted (table 4) shows that all the ICT codes of ethics studied are implicitly act-centered and draw on a rather deontological view.

Finally, we have absolutely to bear in mind that the cognitive moral development advocated by a code of ethics within an organization setting and the effective organizational ethical behavior can differ more or less widely, depending upon the corporate culture and other contextual factors. Assessing such a gap constitutes a very important and significant future research area.

REFERENCES

1. Bentham, J. (1948/orig. 1789). *Introduction to the Principles of Morals and Legislation*, Oxford, UK: Oxford University Press.
2. Bynum, T. (2008) Milestones in the History of Information and Computer Ethics, in *The Handbook of Information and Computer Ethics*, K. Himma and H. Tavani (eds.), Hoboken, NJ: Wiley, pp. 25-48.
3. Chatterjee, S. and Sarkar, S. (2010) Furthering Knowledge Management Research Through Ethical Considerations: A Research Agenda", *ICIS 2010 Proceedings*. Paper 227.

4. Davison, R., Martinsons, M., Ou, C., Murata, K., Drummond, D., Li, Y., and Lo, H. (2009) The Ethics of IT Professionals in Japan and China, *Journal of the Association for Information Systems* (10:11), pp. 834-859.
5. De George, R. (2003) *The Ethics of Information Technology and Business*, Oxford, UK: Blackwell.
6. Donaldson, T. (1982) *Corporations and Morality*, Englewood Cliff, NJ, Prentice Hall.
7. Elliott, N., Lazenbatt, A. (2005) How to recognize a quality grounded theory research study, *Australian Journal of Advanced Nursing*, 22 (3), pp. 48–52.
8. Fraedrich, J., Thorne, D.M. and Ferrell, O.C. (1994) Assessing the Application of Cognitive Moral Development Theory to Business Ethics, *Journal of Business Ethics*, 13(10), pp. 829-838.
9. Gaumnitz, B.R. and Lere, J.C. (2004) A Classification Scheme for Codes of Business Ethics, *Journal of Business Ethics*, 49 (4), pp. 329-335.
10. Gotterbarn, D. (1991) Computer Ethics: Responsibility Regained, National Forum: *The Phi Beta Kappa Journal*, 71, pp. 26-31.
11. Habermas, J. (1996) *Between Facts and Norms*, Cambridge, UK: Polity Press.
12. Hasnas, J. (1998) The Normative Theories of Business Ethics: A Guide for the Perplexed, *Business Ethics Quarterly* (8:1), pp. 19-42.
13. Huberman, A., Miles, M., (1991) *Analyse des données qualitative*. De Boeck Université.
14. Introna, L. (2002) The (Im)possibility of Ethics in the Information Age, *Information and Organization* (12), pp. 71-84.
15. Jamal, K. and N.E. Bowie (2002) Theoretical Considerations for a Meaningful Code of Professional Ethics, *Journal of Business Ethics*, 14(9), pp. 703-714.
16. Kant, I. (1991/orig. 1785) *Groundwork of the Metaphysics of Morals*, London: Routledge.
17. Kohlberg, L. (1969) *Stages in the Development of Moral Thought and Action*, New York: Holt, Rinehart & Winston.
18. Kohlberg, L. (1981) *Essays on Moral Development, Volume I: The Philosophy of Moral Development*, Harper & Row, NY.
19. Levevre, M. and J. B. Singh (1992) The Content of Focus of Canadian Codes of Ethics, *Journal of Business Ethics*, 11(10), pp. 799-808.
20. Levitt, B. and March, J. G. (1988) *Organizational Learning in: Annual Review of Sociology* 14, pp. 319-340.
21. Logsdon, J.M. and K. Yuthas (1997) Corporate Social Performance, Stakeholder Orientation, and Organizational Moral Development, *Journal of Business Ethics*, 16 (12/13), pp. 1213- 1226.
22. Maner, W. (1980), *Starter Kit in Computer Ethics*, Hyde Park, NY: Helvetia Press and the National Information and Resource Center for Teaching Philosophy.
23. Mason R. (1986) Four ethical issues of the information age. *Management Information Systems Quarterly*, (10:1), pp. 5-12.
24. Mill, J. S. (2002 /orig. 1861). *Utilitarianism*, New York: Hackett Publishing Co.
25. Mingers, J. and Walsham, G. (2010) Toward Ethical Information Systems: The Contribution of Discourse Ethics, *MIS Quarterly*, 34(4), pp. 833-854.
26. Moor, J. (1985) What Is Computer Ethics? *Metaphilosophy*, (16:4), pp. 266-275.
27. Moore, G. and Beadle, R. (2006) In Search of Organizational Virtue in Business: Agents, Goods, Practices, Institutions and Environments *Organization Studies* 27(3), pp. 369–389.
28. Moore, G.E. (1959/orig. 1903) *Principia Ethica*, Cambridge, UK: Cambridge University Press.
29. Rawls, J. (1971) *A Theory of Justice*, Boston: Harvard University Press.
30. Reidenbach, E.R. and Donald P. R. (1991) A Conceptual Model of Corporate Moral Development , *Journal of Business Ethics*, 10 (4), p. 273-284.
31. Smith, A. (2008/orig. 1776) *An Inquiry into the Nature and Causes of the Wealth of Nations*, Oxford, UK: Oxford Paperbacks.
32. Snell, R. S. (2000). Studying Moral Ethos Using an Adapted Kohlbergian Model, *Organization Studies*, 21(1), pp. 267-295.
33. Solomon, R. (1992) Corporate Roles, Personal Virtues: An Aristotelian Approach to Business Ethics, *Business Ethics Quarterly* (2:3), pp. 317-340.
34. Sridhar B. S. and A. Camburn (1993) Stages of moral development of corporations”, *Journal of Business Ethics*, Vol. 12 Issue 9, pp. 727-739.
35. Walsham, G. (1996) Ethical Theory, Codes of Ethics and IS Practice, *Information Systems Journal*, 6(1), pp. 69-81.