Intelligent Collaboration:
The Paradox of "Ethical Agency" and "Corporate Governance"

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ABSTRACT

The unprecedented technological developments witnessed in the 21st centuary have been accompanied with a growing importance of "information ethics"due to their far-reaching effects especially for global transactions. Such importance has also moved a wide range of "issues" to the front line agenda of enterprises. The measures used to approach the resulting or potential "ethical dilemma" continued to be oriented towards the minimization of threats and improving privacy through technological and legal measures. Howevere, the use of advanced intelligent technologies such as software agents technology brings the issue of "ethical agency" to the surface and calls for a "redefinition" and paradigm shifts with regards to the way 'information ethics" is conceptualized.

1. INTRODUCTION

The recent technological advancements have significantly redefined the context and domain of data acquisition, processing, and sharing. While new patterns, platforms and architectures are being developed for the maximization of benefits from data, the growing emphasis on "collaborative work", "responsiveness" and "building of alliances" is reshaping the way global enterprises do business. Coupled with their process-oriented "enabling" features, the use of global networks and web based systems has turned enterprises into an archipelago of "integrated" islands of performance. The resulting new digital global economy is becoming increasingly based on global networks of "capital", "information" and "power" and is driven by institutional concepts of "deregulation", "liberalization", and "re-engineering" (Tagelsir, 2006). Within this context, the effort of enterprises is being directed towards process-centered activities that affect corporate functionalities such as:

a. Maintaining operationally-feasible process-technology matrix in a way that sets both the "rationale" and "foundation" for business process reengineering and continuous improvement.
b.   Developing data repositories and adopting alternative forms of database creation, tuning and sharing using alternative architectures, platform and software engineering methodologies.
c. Mobilizing resources (including global networks and other related compo-nenets) in pursuit of improving their potential to facilitate the provision and integration of e-services.
d. Managing information-intensive applications by incorporating "security" and "ethical" dimensions into their core processes.

The main focus of this paper will be on understanding the dimensions of "corporate governance" and "ethical promotion" for global enterprises with emphasis on copyright mechanisms and "ethical agency".

2. INFORMATION ETHICS

Information ethics is the field that investigates the ethical and moral issues associated with the development and application of information technologies in different domains. While it has been regarded as the theoretical foundation for "computer ethics", the focus of information ethics tend to be oriented towards addressing information privacy and confidentiality, data and application misuse, content management and web based interactions, online information authorization and verification, confidence building, resource sharing and the life cycle of information especially ownership, copyright and digital divide.

However, the continous organizational, institutional and operational transformations associated with the use of global networks are challenging enterprises to strike a balance between "information-sharing" and "information protection" and to effectively manage the ethical dimensions that govern the dynamics of "confidence" and "control" in pursuit of improving the capcity to develop and use alternative methods of "information distribution" and "information encryption". Building confidence as an ethical virtue, also demands enterprises to create "balanced and flexible" institutional measures and procedures that appropriately make this virtue "the responsibility of all".

The issue of content management and regulation are also becoming intensively ethics-related considerations. This is because the dynamics of "global access" demands enterprises to maintain "long reach" interfaces on the one hand and promote "corporate governance" and conviviality on the other hand. The ethical dimension of universal access originates from the interplay of different "technological" and "situational" change agents that may result into "disorder" and "unethical" practices if not applied properly. The growing amount and multiplicity of data types, diversity of data structures, hetrogenity of information representation architectures, and the growing capacity of web based systems and portals to manipulate, in a way or another, the way information is being accessed and used are generating fundamental information ethics and moral considerations. Some content-management issues like multilingualism, semantic and ontological considerations are introducing additional ethical dimensions and are acting at the same time as determinants for striking a balance between "access" and "sustainability".

The concern for information ethics especially for global enterprises originates from a set of reasons:

1. Competition in the global market is becoming increasingly resource-based, responsive and knowledge-intensive. The critical success factor for global enterprises, in this regard, is to effectively provide clients an integrated interface. Because global competition is dictating new axioms for the diffucion of technology, the question of information ethics emerges because the mechanisms of information use and protection significantly affects the capacity of enterprises to build international alliances.
2. Globalization processes increase the importance of information ethics because they lead to fundamental structural changes offered by the opportunities and threats available in the operating environment of enterprises and the growing importance of increased application and integration of advanced information and communications technologies into core business processes.
3. The emerging multiple formats and uses of information for web based processing and interaction requires continual reconsideration of ethical principles and how these codes are being adopted and applied. This is because information ethics influence personal decisions, professional practice, and public policy (Elrod & Smith, 2005).

3. MANAGING INFORMATION ETHICS

Because the nature and magnitude of "information ethics" is usually viewed within the context of a "networked" intersection of organizational, institutional, technological, cultural and political variables (Rafael 2000), alternative approaches and measures are being adopted over time to manage the issues associated with "information ethics".

The development of information and communications infrastructure has been widely used to "safeguard" information ethics by using robust, global, broadband and high-capacity processing platforms including the internet, Integrated Broadband Networks (IBN) and Integrated Services Digital Network (ISDS) (Manuel, 1996). However, the majority of these technology-centered interventions continued to be oriented towards maintaining, improving and promoting ethics by emphasizing on reducing security and ethical threats and to some extent, improving privacy.

A wide range of multiple legal measures are also being used as means for maintaining information ethics in enterprises such as Article 12 of the Universal Declaration of Human Rights, The UN Guidelines for the Regulation of Computerized Personal Data Files (1990) and the guidelines of Fair Information Practices. Howevere, the "sole" use of legal measures is challenged by the difficulty of maintaining acceptable levels of applicability between national laws and international legal frameworks. Such difficulties have made global enterprises to continuously face difficulties with regards to developing effective customer relations' management systems, building effective international business alliances and meeting the operational requirements of global processing.

As a part of formal protection, intellectual property rights, copyrights, patents and trade marks proved to be effective mechanisms for securing information ethics within the context of collaborative global connectivity. A system of intellectual property rights (IPRs) is necessary to ensure that individuals or companies will carry out innovative activities otherwise imitation will erode the inventor's profit rate, and hence lower the incentive for inventive activities. An IPR, such as a patent, grants the inventor a legal monopoly to the commercial exploitation of the invention (Bekkers, et al 2002).

Through patents, for example, an IPR system enables the monopolization of inventions (for different time periods in different counties) in accordance with their satisfaction to certain country-specific and sometimes international requirements that qualify them for protection. The invention has to be new, involve an inventive step and be capable of industrial application. This means that nobody can carry out the invention claimed in the patent without express permission from the patent owner (Kennedy 2002). Despite the universal applicability of intellectual property rights, emphasis continued to be made on the decisions whether or not to patent using intellectual property rights based on a variety of decision attributes in pursuit of ensuring flexibility through flexible copyright modification and customization (Bulut & Moschini, 2006; Anton & Yao, 2004; Denicolo & Franzoni, 2004).

Despite the considerable benefits of such mechanisms, their efficiency in meeting the challenges posed by globalization tend to be questionable at least if they are not used collectively. While some efforts are done to examine the relationship between the use of copyrights and the process of building global alliances, little have been done to investigate their impact on the capacity of enterprises to benefit from technological developments and use of alternative intelligent (and other) frameworks to implement web based global trasactions especially when software agents' technology is being used and their resulting "moral and ethical" agency dimensions.

4. THE DOMAIN OF MORAL/ETHICAL AGENCY

Information ethics are strongly affecting the management of decentralized operations, building of alliances, enhancing coordination and sharing functionalities among web based applications. In addition, they have also been affecting the way enterprises are developing and using platforms for the "management of complexity" and enhancing "corporate governance".

Howevere, while enterprises are implementing decentralized activities through delegation and empowerment, the growing deployment of e-services and processing has motivated the use of "software agents" as means for supporting or acting on behalf of their "owners" or "users". The use of agent-based systems technology is growing in different domains because of their ability to offer modularity and abstraction necessary for facilitating the management of real, complex, large, and unpredictable problem domains (Tagelsir, 2006). Their deployment in different areas proved their relevance to handle complex, distributed problems involving a multiplicity of interconnected processes whose solutions demand the allocation of fusion of information and expertise from demographically distributed sources (Power 2000; Iglesias, et al, 1998). Especially in distributed environments where decision making data tend to be decentralized and the need for global control of the entire system increases, software agents must be able to interoperate cooperate and coordinate with each other in peer-to-peer fashion to increase their problem-solving

scope through the use of multiagent mechanisms. Multiagent systems approach problems through the development of functionally specific, and possibly heterogeneous specialized modular components (agents) to solve particular problems by using their own most appropriate problem solving paradigms and interact in order to reach an overall goal and support different people (using different information sources and communication links), at different times, with different software tools and techniques. They generate approximate solutions by dividing the necessary knowledge into subunits, associating an intelligent independent agent to each subunit, and coordinating the overall agents' activity.

The context of "moral agency" tends to be oriented towards the conceptualization of information ethics of "mobile" multiagent systems by approaching the matter within the domain of "ethical decision making". The ethical principles that govern agent interactions and functionalities greatly reflect the patterns and approaches used by their "owners" and "users" to conceptualize and justify their actions as either ethical or not.

However, by generally defining "ethics" as being doing with making a principle-based choice between competing alternatives, the use of multiagent systems provides different characteristics for the resulting "ethical dilemma" and "ethical decision making". The difficult task in this context is to approach the problem "logically" and make decisions based on well-reasoned, defensible "ethical principles", value judgments, and (formal & informal) guidelines. The emphasis on "deontology", articulation of rights, the definition of professional relationships and efficacy as means for maintaining confidentiality and impartiality and the adoption of different types of consequentialism (egoism, utilitarianism, and altruism) may all be necessary for approaching information ethics within the context of intelligent agent interactions.

The context of moral agency tend to be oriented towards examining the "morality" of artificial agents, cross-agent interaction in the infosphere and the problems arising from the life-cycle i.e., creation, collection, recording, distribution, and processing of information especially ownership and copyright, digital divide (Wikipedia website).

The issues of ethical or moral agency takes place clearly in multiagent mobile systems rather than single or limited-agents systems whose functionality is governed by limited boundaries of processing and information sharing and use. Within this context, the potential of ethical dilemma exists in two situations:

a. Because mobile agents interact with other agents outside the entire multiagent organization either to access databases or carry out transactions on other servers, an ethical dilemma may exist when:
   1. The mobile agent, either deleiberately or not, reacts (in a way or another) to the ethic-oriented dimensions of technology that characterize its use in different sirtuations such as amplification, routinization and sublimation. The ethical dimensions associated with such technological attributes stems from their ability to improve the sensory and interception ability of the entire mobile agent through the use of use of zoom lens, listening devices, and heat-detection toolsas well as their ability to "sustain" unethical actions and complicate their detection. All of these concerns increase the potential of an entire mobile agent to find "escape gates for bad unethical behaviour".
   2. The agents "visited", "interacted" or "consulted" by the entire mobile agent bring it into the "trap of unethical domain". These actions range from denying access, wrong-directing, and arresting, among others.
b. Despite the fact that the functionality of the entire mobile agent is governed by the processing and communication models incorporated into its knowledge and inference engines, it became confused about "what to do" when it finds itself faced by critical situations that are not predefined. And this brings to attention the basic question regarding the level of "autonomy" to be provided to the mobile agent and its ability to use its sensing abilities to "adjust its behaviour" in response to the changes taking place in its environment. It also has to do with the type of "ethical decision making" principle adopted by its "owner" or "user" and whether alternative paths of action or decision making models are allowed, whether the agent can "consult" with other agents in its entire multiagent organization, whether it returns back to the owner or user or commit unethical actions and justify them using the egoism principle.

But will the use of intellectual property right systems (including copyrights, trade marks and patents) "relaxes" or "complicates" the resolution of the resulting ethical dilemma? Will the actions committed by the entire mobile agent (irrespective of

their type and magnitude), be regarded as "ethical" or not? While the analysis of such dilemma remains "situational" and "domain-specific", at least providing an "yes" answer to the above mentioned questions remains questionable keeping in mind that the functionality of "mobile" multiagent systems remains governed by a complex cause-effect and reasoning context. However, the "reluctance" to have a "yes" originates from the fact that while the use of "databases and resources" copyrighting, encryption and other forms of information protection may "organize and regulate" the capability of the entire mobile agent to migrate across different servers, but it also encourages the "hosting" agents residing on these servers to bring the "visiting agent" into the ethical dilemma. Because the management of websites these days is becoming increasingly sensitive to breach of information privacy and confidentiality (and even political ones associated with war against terror), the continous change of website addresses or encryption keys may provide a room for unethical actions.

5. INTELLIGENT INTERACTIONS AND ETHICAL AGENCY: DIRECTIONS FOR RESEARCH
Because the use of web based inteligent frameworks are witnessing a growing deployment and infusion in core processes of global enterprises, the emphasis on the context of "information ethics" and the use of alternative mechanisms to regulate information access and use, special attention need to be directed towards some key research issues such as:

1. To avoid the downside risks associated with the use of copyrights and other intellectual property mechanisms and their impact on potential "unethical" agency, a "structrual" paradigm shift is looming very big. The refinement and orchestration of such mechanisms used to expand their focus beyond "lawful thinking" to move a step forward and incorporate "implementation" requierements and benefiting from the outstanding capabilities of the emerging technologies. Without such a shift the "conceptualization" of the domain of "information ethics", ethical agency and accordingly "operationalizing concepts" through acceptable implementation will not go hand-in-hand.

2. While the use of intelligent agents will continue to act as a major "enabling" platform for global interactions, the context of "ethical agency" need to be "mirrored" against threats associated with global collaboration, preception of such threats by decision makers and enterprises, attitudes towards using multiple approaches for the maintainance of "ethical" domains, and most importantly, the ability to couple and decouple mechanisms as the situation changes. Without such integrated thinking our ideas about information ethics in general and "ethical agency" in particular will remain a "cry in the desert", not implemented even if it is heard by someone because, simply, it is "scattered".

6. CONCLUSIONS
The question of information ethics is gaining momentum attention and importance within the context of global trasactions due to the complexities associated with the information-based migration of enterprises to "global trajectories". While such ethics are significantly and directly affecting some industries such as digital products (software, entertainment and libraries), their impact on others is also growing. However, the "isolated" implementation of technological and legal measures has been challenged by a wide range of considerations. The use of "intelligent agents" as a backbone concept for the implementation of global transactions, task coordination and information sharing among enterprises increases the importance of understanding "ethical agency" in a way that allows for an "acceptable" degree of integrated thinking that foucsses not only on "potential threats" and "unethical actions" but also to set the foundation for generating a process-technology matrix to guide implementation.

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