A Pragmatic Framework for Ethical Decision Making: the limits of professional codes

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Abstract
The need for professionals to make informed ethical choices in design and management of information systems is more important than ever. However, the relative newness of the information profession and the dynamism of information technology mean that traditional foundational approaches to ethics, while useful, are inadequate for today's designers and managers. This paper proposes a pragmatic ethical framework that suggests a possible relationship between the maturity and dynamism of a professional field to different approaches to ethical decision making. It concludes that relatively new fields such as software engineering can benefit from process-based approaches, and that such fields are well positioned to inform other dynamic professions that face similar challenges in making ethical decisions.

1. Introduction

Modern organizations are more heavily dependent on technology than ever before in history, and this dependence presents unprecedented ethical demands on managers and professionals. Technology, in the forms of closely coupled logistics systems and information systems that support international finance and commerce, has enabled both businesses and non-profit organizations to increase their geographic reach, increase their range of potential service offerings, and develop higher quality products and services. The same technologies, however, have become a strategic necessity [1] for organizations facing an increase in global competition.

As the available technologies increase in number and complexity, making the choices of adoption and implementation timing have also become more complex. The outcomes of an executive's choices and decisions have not only economic and competitive consequences for the organization itself, they also have impacts on the organization's employees, on external organizations and individuals, and even on the broader society. Although managers and executives have always faced decisions that go beyond simple business choices, the increased complexity of today's organizations—arising from global competition and the increasingly complex technologies and resulting interrelationships among these technologies—make these choices even more difficult. At the risk of oversimplification, we suggest that four factors are increasing the need for an ethical dimension in the management of technology: the pace of technical change, the malleability of technology, the invisibility of technical operations, and the potential irreversibility of technical impacts. Although the presence of these factors is not new, the salience of them has been heightened over the past decade.

The pace of technological change has not abated, and—as some [2] would argue—has accelerated over the past three decades. The empirical observation that computing power doubles approximately every eighteen months (popularly known as Moore's Law) means that technological change, especially in information and computing technologies (ICTs), sets up a cycle of lower cost, which in turn stimulates new applications of the technology, which in turn lowers production costs, which in turn stimulates even wider applications, etc.

This accelerating pace of change means that managers face situations for which they have no readily available decision tools, templates, or even heuristics to help in making decisions. Conventional societal rules do not provide standard solutions or guidelines. Most social institutions were set up in a time of slower paced technical development, and today they often do not seem to be well-matched to societal needs. Laws, for example, generally lag technological developments that create opportunities for deliberate or unintentional harm to individuals and organizations. Consequently, managers and professionals often must deal with situations for which there are no established rules or legal precedents. Copyright law, and the institutions set up to enforce such law, is not well suited for encouraging new business models for the electronic sharing of files among computers and computer-based storage units.
While we can argue that the pace of technological change is accelerating, another factor, the malleability of technology, has been a constant. Technology has no built-in sense of right or wrong, and developers and users can—and often do—try to shape its use to their own ends. To an extent, developers and users make choices according to their own moral compasses. Their choices affect others’ lives, often in significant ways, and often the impacts are not anticipated. Cell phones are useful communication devices, but they also can become part of remotely-controlled detonators for improvised explosive devices.

Complexity and the expertise associated with design and implementation of newer technologies often render the workings and long-term impacts of technical implementations hidden—invisible to—the ones being affected. The workings of computer programs are rarely visible, only the consequences of what the programs do. Because they are complex, systems are sometimes not fully understood, even by their operators or managers.

Finally, even when an immediate outcome can be foreseen, the longer term impact can be uncertain. Over time, the cumulative impact of decisions can be irreversible. The consequences therefore may be experienced not only by the managers and their contemporaries but also by future generations.

In an organization of complex technology and uncertainty, how should managers and professionals approach decision making? If we agree that ethical considerations should be included in professional decision making, are current ethical guidelines and codes adequate? Are the foundations of such guidelines and codes still appropriate for today’s world, when technical changes are rapid and decisions may have global consequences?

The remainder of the paper comprises three sections. In the next section, we briefly review the philosophical foundations for ethics. We then present a recent pragmatic model and framework and show how these enable us to map existing professional ethical codes onto this framework. Section four presents conclusions and discussions of the application of the model for guiding managerial and professional decision making.

**Philosophical Foundations: Product and Process Perspectives of Ethics**

Mason [3] notes that there are two streams of thinking about normative, action-oriented, ethics. These normative approaches provide guidance on how one should make ethical (or moral) decisions, and it is these philosophical approaches that are of greatest interest in this paper. (A third approach, virtue ethics, deals with “being” good rather than focusing on decisions and actions.) Each of the action-oriented streams has advantages, but each can highlight draw attention to different aspects of decision making and desired behavior. One set of theories and approaches (teleology, from the Greek telos, or end/purpose) is concerned with the pursuit of the good, meaning that the focus is on the purpose, intention, goals, and consequences of agents (actors). The other set of theories and approaches (deontology) focuses on doing good, on following a set of guidelines or rules that enable the agent to make decisions that meet criteria for “good” decisions. Consequently, in this approach, there is a greater emphasis on the act itself, not simply the agent’s intention or the expected consequences.

Teleological theories and approaches may focus either on the agents themselves or on the results of the agents’ actions. When focused on the agents themselves, the theories address issues such as moral responsibility of the individual, the intention of the actor, and the state of knowledge when she/he makes a decision or takes a particular action. The focus is on the what the agent intends by the action. When focused on the results of the agents’ actions, the theories address issues associated with the consequence of the actions, issues of public interest and consequences for different groups of stakeholders.

Deontological theories and approaches seek to determine if the act performed by the agent is acceptable according to a set of rules or moral statements. Rules, such as the Golden Rule and the Ten Commandments, provide guidelines and help in making ethical choices.

While both approaches have merit and can be helpful, neither provides a complete guide to decision making and professional conduct. Each has shortcomings that keep them from being a total solution to making ethical decisions.

The teleological approaches are helpful in focusing attention on personal intentions, but still provide inadequate guidance on issues such as what is an ethical intention and if good intentions (regardless of consequences) are sufficient for ethical behavior. Intention is considered, but the practical issues of weighing the costs and benefits of the actions when different stakeholders have incompatible or competing interests can be daunting.

The deontological approaches would seem to be relatively straight-forward: simply check to see if the decision fits within the set of rules or follows the moral statements. The difficulty with the deontological approaches is that there may be situations in which multiple, but conflicting, rules might be considered. For example, it would seem that the rule “thou shall not kill” is unambiguous. However, suppose tradition holds that if one’s father and mother are murdered, then honoring...
them requires putting to death the murderers. In this case, there is a conflict with the “thou shall not kill” rule. Deontological approaches may not clearly communicate which of possible conflicting rules should be applied.

Making the decision about which among the conflicting rules are appropriate will be influenced by roles performed by different stakeholders in deliberations. The various parties involved or affected by the ruling may be given a greater or lesser say in any such deliberation, based on the profession’s experience with the situation. What role various stakeholders play in such deliberations, and the degree to which they need to be included in a discussion and not simply accommodated in a decision, is a part of the body of knowledge that evolves within the established conduct and behavior of a profession. Thus, the need for deliberation and inclusion or exclusion of parties evolves with professions as they learn from the experiences gained with successes and failures over time.

**Pragmatic Extension: The Role of Justification and Discovery**

Keulartz, et al [4] propose a new approach to ethics based on pragmatics. This approach builds on the interplay between society and technology. In their words, “Both scientific facts and technological artifacts appear to be the outcome of negotiations, in which many diverse actors are involved” (p. 8). This pragmatic approach to ethics addresses what the authors perceive as shortcomings in both the traditional philosophical ethical approaches and current applied ethical approaches. The difficulty with both the older approaches and the current applications, according to the authors, is that neither seems to cope adequately with the highly dynamic nature of modern technological culture. This section discusses this pragmatic model and a framework for ethical codes that address these concerns.

The model proposed by Keulartz et al is termed a pragmatic approach to ethics. In the field of pragmatic ethics, moral issues are viewed as opportunities for creativity, not simply problems to be solved. In the words of Joas [5], quoted by Keulartz [4]

> Pragmatist ethics . . . is not only interested in the application of pre-given normative rules, but in the construction of new possibilities for moral action . . . [in] the creative character of the solution of moral problems.

The pragmatic approach thus allows for rules and the more traditional approach to ethics, but the approach expands the notion of ethical frameworks. A 2 x 2 matrix accommodates an expanded, emergent characteristic of ethics, as shown in Figure 1.

<table>
<thead>
<tr>
<th>Context of Discovery</th>
<th>Product</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1. Pragmatic Model of Ethical Approaches (adapted from Keulartz, et al, p. 19)</td>
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<tr>
<td>Context of Justification</td>
<td>1. Traditional ethics: Providing arguments and justifications for or against courses of action</td>
<td>2. Discourse ethics: Structuring and safeguarding fair public deliberation and decision making</td>
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<tr>
<td>3. Dramatic rehearsal: Criticizing and renewing vocabularies, exploring possible future worlds</td>
<td>4. Conflict management: Aiding an open confrontation of heterogeneous moral vocabularies and worldviews</td>
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In this model, Keulartz introduces the dimension of context to the older classification of product and process. The context may be one of justification, the basis of the traditional ethics, or it may be one of discovery of possibilities for the future.

The quadrant labeled 1 is the locus for traditional ethical approaches that focus on justification of decisions and behavior. In quadrant 2, Keulartz expands the justification context to modern issues of process. This quadrant highlights the process by which decisions are made among conflicting rules and competing values.

Quadrants 3 and 4 are related to discovery—the exploration of alternative ways of viewing the world and the examination of alternative ethical and moral viewpoints. In these quadrants, moral issues become stimuli for creativity.

Quadrant 3 envisions “dramatic rehearsal” as a critical approach to moral issues involving products. In engaging in a dramatic rehearsal, the designer or manager engages in a critique and review of the accepted ways of posing issues, leading to a questioning of the implications of the normal vocabularies and the values embedded, but not surfaced, in the use of these vocabularies in the outcome of the design.

An illustration of different assumptions in product design is that of birth control [4]. The birth control pill, to continually be effective, requires a woman to take it daily. This can be compared to a different product design (Norplant) in which the responsibility for regular use is removed from the woman by placing a long-lasting hormone-releasing device under the skin. The ethical
choice in the latter is made once, by the woman in consultation with her doctor, and then the product itself takes over the responsibility. An even different product scenario is possible if one envisions a male birth control pill, in which the locus of ethical control is shifted to the man.

The final piece of this model (quadrant 4) suggests an approach to ethics that engages the stakeholders in a confrontational discussion in which issues and values that may arise from different worldviews or cultures. It is in this quadrant that the full expression of the pragmatic ethics approach may be recognized. In this quadrant, the older notion of technological artifact as a concrete, unambiguous product is replaced by the more fluid idea of process—something that may be abstract, ambiguous, and more easily subjected to distinctly different social constructions. Moreover, the objective of the ethical approach is for the heterogeneous values to be confronted. No longer is there a single solution—or even multiple, pre-determined solutions—but there is an emergent solution that arises from the confrontation.

An example of ethical problem-solving in this quadrant is the ongoing debate about cloning. In this debate, engaged by scientists and politicians (though differently in different countries), there are a multitude of viewpoints, and the process is one of confrontation between and among distinct value systems and perspectives.

In summary, the overall model in Figure 1 is compatible with and complementary to traditional ethics. However, it also provides a framework within which ethical issues can engage the changing nature of technology and the multitude of stakeholder voices that may arise around particular issues. In the next section, we use this framework to help understand the ethics of different professions and to suggest how we can advance ethical approaches to the management of technology.

**New Theoretical Framework: The Role of Discourse and Dynamics in Developing a Code of Ethics**

The model of ethics presented above gives us insight into how professions view their ethical responsibilities. These viewpoints, we believe, interact with two other aspects of a profession (the product-process viewpoint and the dynamism) to influence the development and embodiment of a code of ethics for the profession.

Central to the philosophical approach to ethics is the choice of focus on product or process. The focus of product or process helps determine the degree of emphasis that a code of ethics places on the attributes or behaviors of the professional compared with the degree of emphasis the code places on the resulting characteristics or implications of the professional activities.

We believe that this emphasis also will differ based on the degree of technological change with which a profession must routinely confront and to which it must adapt. If a profession is dealing with a relatively more stable environment, code devised according to the product of a profession is possible. But when the environment is subject to frequent change, there is greater uncertainty, and this uncertainty should alter the focus of a code toward a process perspective.

Central to the pragmatic model of ethics is the importance of dialog and debate in defining codes of ethics. Older and well established professions have long standing traditions, bodies of knowledge, and institutional norms and behaviors on which they can depend. These attributes of a longer tenure of a profession should reduce the need for debate among members and associated stakeholders to issues, as most debates will be well defined, if not wholly resolved. On the other hand, less established professions (those having shorter tenures), may have a greater need for discussion and debate. These discussions and debates are needed to ensure consideration for all stakeholders, establish the creation of procedures, and to reify and interpret developing standards.

Based on these two dimensions: dynamism (rate of change) and tenure (length of time that the professional groups have recognized their ethical responsibilities), we propose a framework that characterizes the needs of ethical codes for different professional groups. This framework is illustrated in Figure 2 and populated with the authors’ judgment (illustrative, but certainly open to argument) about how existing professions might be classified. As one moves from more stable and longer tenured technical professions (the lower left quadrant) to more dynamic and newer professions (the upper right), one anticipates an increasing need for a more pragmatic approach, which would enable “process-discovery.” In the lower left quadrant, which represents older and less dynamic professions, traditional ethical approaches should be adequate.
The principles of medical ethics clearly give attention to process. For example, in several instances the code makes statements that explicitly recognize the inevitability of conflicts between the needs to benefit patients and the rules that are established in laws. As stated in principle III, physicians shall “respect the law and also recognize a responsibility to seek changes in those requirements which are contrary to the best interests of the patient. And as stated in principle IV, physicians “shall safeguard patient confidences and privacy within the constraints of the law.”

These principles demonstrate a flexibility that allows for adaptation over time. For example, issues of privacy, legality, and patients rights are continual challenges as new information technologies increase the ease of information transfer and sharing. We note that the American Medical Association chose to develop a set of principles, rather than define a set of codes outlining ideal behaviors, whereas the Construction Specifications Institute comes much closer to defining such an ideal and promoting it to their members as something they should pledge themselves to (see above).

The third set of codes, those of the American Association of University Professors [9] offers an example for quadrant 3. In this profession, the rate of technological change is slower than in the prior example, yet the age of the profession necessitates a greater degree of exploration, as issues are not fully explored or understood. The profession of university education is arguably less mature than the prior two professions. However, the effect of technological change on university professors is not nearly as intense as that experienced by medical doctors. As a result, we see an example of a code that outlines a set of guidelines, as befitting a deontological approach.

This code explicitly recognizes the need to challenge and continually review the standard as upheld by those engaged in this profession. For example, the code states in section I that professors are primarily responsible to their subject and to “seek and to state the truth as they see it.” But as this section continues, “they accept the obligation to exercise critical self-discipline and judgment in using, extending, and transmitting knowledge. This includes that of colleagues, as outlined in section III, where in the exchange of criticism and ideas, “professors show due respect for the opinion of others.” Challenging ideas is also something that professors should apply to the rules of their institutions, when the do not contravene academic freedom, thus they “maintain their right to criticize and seek revisions,” outlined in section 4. Also in section 5, the code states that “professors have a particular obligation to promote conditions of free inquiry and to further public understanding of academic freedom.”
In sum, the code of ethics for university professors offers several guidelines intended to insure that there are ongoing opportunities afforded to challenge and revise existing rules and regulations, especially those that enable or constrain the participation of a variety of important stakeholders. The focus is on processes, not products, so that there is continued debate and challenge, even if technological change is not as rapid as in some other professions.

The final example is taken from a relatively young industry, software engineering, which represents one of the most dynamic of professions. Because of the newness of the profession and the dynamic nature of the technology, the code provides an example of a code that emphasizes process [10]. At the same time, the code also highlights the importance of participation and inclusion and the need to incorporate stakeholders in any process that will determine the appropriateness of outcomes, as asserted in stakeholder analysis [11]. In doing so, this code offers an example of our quadrant 4.

The rate of change this industry faces is given recognition in the first paragraph of the preamble, which discusses the “central and growing role in commerce, industry, government, medicine, education, entertainment and society at large [of computers].” The recognition of future conflict also is recognized in the second paragraph, where it states that the principles to follow “identify the ethically responsible relationships in which individuals, groups, and organizations participate and the primary obligation within these relationships.”

The complexity of the issues faced under these circumstances is evident in a later statement, which reads, “code is not a simple ethical algorithm that generates ethical decisions. In some situations standards may be in tension with each other or with standards from other sources.” The document continues in the next paragraph, “these principles should influence software engineers to consider broadly who is affected by their work; to examine if they and their colleagues are treating other human being with due respect; to consider how the public, if reasonably well informed, would view their decisions.” It continues, “the ‘Public Interest’ is central to this code.”

The second to last paragraph in the preamble reinforces this recognition to address change and to incorporate a pragmatic approach. It states, “the dynamic and demanding context of software engineering requires a code that is adaptable and relevant to new situations as they occur.”

**Discussion: Limitations of Codes of Ethics**

As technology management professionals find themselves in professional arenas that are more dynamic and may be characterized as emerging from new technologies or combinations of technologies (e.g., biomedicine and genome issues), they are likely to find guidance by being informed by those professions that currently, or have in the recent past, occupied the rightmost and upper areas of our framework.

In this quadrant, the limits of codes of ethics become apparent for two fundamental reasons. First is the dynamism of the professional roles and situations—the increasing number of combinations of professional fields, changing technologies, etc., leading to a growth in the scope (dimensionality) of the issues that can arise. Second, the increasing ambiguity, uncertainty, and complexity of decisions present practical limits to code-based and outcome-based decision making. As the dimensionality increases, it becomes impossible to anticipate the consequences of decisions with any confidence, showing the limits of consequentialism as a basis for ethical decisions.

We speculate that it is not merely happenstance that the codes we used as examples increased in length as the professions they represented had to deal with increasingly complex and dynamic environments, giving rise to novel and unexplored ethical situations. Guiding and informing practitioners in such professions requires more explanation and additional heuristics over the older and more established professions. The traditional ethical framework becomes a less comprehensive guide in such cases.

We suggest that a process-based approach (i.e., approaches in either quadrant 2 or 4, discourse ethics or conflict management) can prove more appropriate to making design decisions in a world that is highly interconnected—a world in which changes in to a design or system influences many other systems and behaviors. Design decisions, or changes in systems, have second and multiple-order consequences that go beyond the immediate systems affected by the decision. By incorporating a process based approach to ethical decisions, a designer (design team) is provided with a richer awareness of the potential values and consequences.

This paper has only touched on the necessity for a more robust model and approach for an approach to ethical decision making approach to technology management. What we have presented is one such model, and we have demonstrated that it helps in understanding how different professions may develop and implement quite different ethical codes. At a minimum, the model has demonstrated that there is not a single approach or heuristic for every technical arena and that both the age of the profession and the dynamism of the technical environment are factors that shape the profession’s ethical codes and standards.
In seeking to realize the range of validity of this framework, analyses of other professions can be informative. Of particular interest would be an analysis of the code of ethics of any professions that are changing rapidly or that are in crisis. Such studies may tell us if a fit with the framework is a useful measure of the appropriateness of the code. If so, then the model may be helpful as a meta standard by which codes may be assessed periodically. More importantly, the concept of pragmatic approaches that involve the key stakeholders in a process of decision-making may be more appropriate for the complexity of resolving ethical issues in a world that is increasingly connected, where decisions may have unintended consequences beyond those immediately affected by the decision.

Conclusion

Technology, particularly in the computer and communications field, continues to develop at a rapid pace. Traditional societal institutions such as the legal system simply cannot react quickly enough to meet the fluid and ever-changing requirements presented by new technology. Importantly, professions are socially recognized occupations that have a special place in the functioning of the modern society. Professionals have considerable autonomy in their work and therefore are expected to be service oriented (altruistic). The nature of professions is that the persons engaged in the profession have specialized knowledge (usually gained from an extended period of study or training), and therefore their clients are generally unable to judge for themselves the quality of the service. The combination of these qualities—the relatively autonomous aspect of the work, the expectation of an altruistic attitude toward service to society as a whole, and the specialized knowledge gained through study and experience—necessitates that professionals themselves regulate the body of knowledge, the entrance of new practitioners into the profession, and establish a code of conduct for their practitioners.[12]

We believe that the framework presented here can be useful for understanding what has been done by professions in the past in order to inform those professions that are emerging and evolving today and in the future. We posit that pragmatic, process-based approaches present a useful concept for establishing the direction for ethical development in professions. In taking such approaches, emerging ethical issues become stimuli for the creative thinking among stakeholders that not only can capture the diverse viewpoints and cultural perspectives in today’s global organizations but may generate innovative resolution of these issues. Information systems professionals are uniquely positioned to help identify models and processes that professionals in similar dynamic fields can use in making ethical design choices and decisions.

References


