CE2IT: Continuous Ethics Enhancement for IT Professionals

William W. Agresti

IT professionals sometimes perform tasks that are tedious and repetitive. But have you ever thought that the mundane program you’re writing or the system you’re installing could cause serious problems for people if something goes wrong? Consider the following examples:

• A program’s failure to follow privacy policy could leak sensitive financial information, leading to identity theft. Imagine having to write several letters for each credit card, loan, or bank account that you have. Imagine trying to convince these companies that you didn’t spend the weekend ringing up the $100,000 in debt showing up in their systems.
• You’re being pressured to install a new laboratory system for a hospital on time, under a ridiculously short schedule. But failure to perform all the system checks could lead to inaccurate results on medical tests, compromising patient care.

As IT moves into more mission-critical processes, the possibility for ethical dilemmas with far-reaching consequences increases. Are you prepared to react well in these situations?

ETHICAL BEHAVIOR: A CONSTANTLY SHIFTING TARGET

Ethics start out as personal. Your upbringing, values, ingrained sense of right and wrong, moral predicaments, and moments of anguish—integrated over a lifetime—influence how you perceive the morality of today’s actions and choices. No alarm will ring to prompt you that this is one of those times when you should apply what you learned (or forgot) from those ethics training sessions last year. And with IT continually changing, some of today’s ethical dilemmas weren’t even around last year. So IT professionals can benefit from a personal framework for recognizing and understanding the ethical dimensions in the situations they encounter every day.

Educational programs and company training can help IT professionals improve their awareness of ethics issues, but the IT profession needs more help for several reasons:

• Continuing advances in IT products and services increase the potential for abuse and misuse.
• Needs that are compelling when considered individually (such as personal privacy and counterterrorism) raise ethical conflicts in the real world where they must coexist. For example, monitoring personal e-mail messages might prevent terrorism but violates the personal privacy of law-abiding people.
• Legislatures will enact new laws in areas such as data privacy, computer crime, and spam. How the courts interpret these laws—and what companies must do to abide by them—are a constantly evolving situation.
• Virtual communities are not all virtuous; IT inventiveness can tempt people and businesses toward personal gain, disruption, or destruction. Increasingly, it will be the IT professional’s job to protect his company’s systems and employees from such problems. But when do, say, personal freedoms end and an Internet service provider’s obligation to screen personal

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Web postings begin?

This rapidly changing environment requires a continuous, adaptable, and enhanceable personal approach to ethics. Fortunately for IT professionals, this approach is not a foreign concept; continuous improvement has been a cornerstone of professional development, quality improvement, and software process improvement through the Capability Maturity Models of the Software Engineering Institute, for example. In software, such models arose because of the nature of software development: the certainty of changes in essential elements (such as subject content and application environment) and the enormous leverage people can have on the final outcomes. The same is true today of ethical decision-making in IT. So it makes sense to think about applying continuous-improvement models and techniques to ethics enhancement.

Continuous Ethics Enhancement for IT Professionals (CE2IT) is a personal framework that responds to an IT professional’s need for guidance in ethical decision-making. It is designed to “see to it” that IT professionals integrate ethics into their personal and professional lives. Figure 1 illustrates the approach as the interactions among three elements:

- The **IT professional** seeks to be ethical in conduct and decision-making.
- The **real world** is a constantly changing, enormously complex environment of people, cultures, products, events, and so on. The world continually presents situations that call for decisions, actions, and reactions from IT professionals.
- **Resources for ethics enhancement** include information such as published material, laws, codes of ethics, and refinements of ethical principles. This pool of information comes from leaders in ethics, especially those who study the relationship of ethics and IT. These leaders create scenarios, case studies, and guidelines illustrating ethical and unethical behavior.

As Figure 1 illustrates, the IT professional addresses the world’s ethical challenges through ethical analysis and real-time ethics. Through the critical skill of **ethical analysis**, professionals use their own moral judgment to thoughtfully consider a situation’s ethical dimensions. **Real-time ethics** is the acknowledgment that circumstances might not permit thorough analysis—how can IT professionals sharpen their abilities to respond quickly and make on-the-spot decisions that reflect ethical sensibilities?

**ETHICAL ANALYSIS**

Comprehensive ethical analysis and more immediate real-time ethics are two ends of a continuum. A more realistic view is that the time available for deliberation on an ethical issue falls somewhere in between two extremes:

- Before you hit the return key, you ask yourself whether this e-mail message is responsible and professional. Here, you control the amount of time you have to consider the situation; the analysis can be as comprehensive as you require.
- During a meeting on personnel data, you ask yourself, “Does all this private information need to be so widely available? Should I raise the topic of access controls even though it will increase costs?” In this situation, you have little control over the decision-making time. You basically have a split second to decide whether to speak up or not.

CE2IT encourages the application of ethical analysis in proportion to the gravity of the ethical concerns. For important decisions, seek more time for reflection (“let me sleep on it”) rather than feel coerced into a rash action or decision.

Good ethical analysis means deliberately evaluating a situation and carefully weighing alternative courses of action. Just as CE2IT draws upon the IT professional’s familiarity with continuous improvement, Walter
Maner capitalized on another familiar concept, the distinction between algorithms and heuristic methods (W. Maner, “Heuristic Methods for Computer Ethics,” Metaphilosophy, vol. 33, no. 3, 2002, pp. 339-365). Maner examined more than 60 methods, ranging from a four-step process to one having 53 steps supported by a 50-page user manual! The “Resources: From Classical to Contemporary” sidebar includes Maner’s Web site and other starting points in conducting ethical analysis.

At the other end of the spectrum, George Reynolds offers the following simple and easily remembered procedure for ethical decision-making (G. Reynolds, Ethics in Information Technology, Course Technology, 2003, pp. 15-18):

- Get the facts.
- Identify the stakeholders and their positions.
- Consider the consequences of your decision.
- Weigh various guidelines and principles.
- Develop and evaluate options.
- Review your decision.
- Evaluate the results of your decision.

**REAL-TIME ETHICS**

A defining aspect of CE2IT is recognizing that time and circumstances might not permit as thorough an ethical analysis as the situation merits. Real-time ethics involves the highly interactive behavior of every person and working professional. Each must talk, write, and take action without having sufficient time to assess ethical issues.

The situation might indeed be instantaneous. For example, in a coffee-break discussion at your workplace, if other colleagues are unfairly critical of an absent colleague, do you defend the absent colleague? Are you silent? Do you seek acceptance by adding your own negative comments? CE2IT followers study related scenarios that would prompt them to examine their feelings about respect for others, self respect, and “loyalty to the absent” (S.R. Covey, “Be Loyal to Those Absent,” 2001, http://www.frankincovey.com/ez/library/absent.html).

The interactions (the arrows in Figure 1) among the IT professional, ethical resources, and the world illustrate the continuous nature of CE2IT. The IT professional acts and makes choices in the world, and reacts to situations that arise, in this way exhibiting behavior that reflects ethical principles. The ability to quickly size up the ethics of a situation is key; enhancing that ability comes from accessing information resources about ethical and unethical behavior. For example, an IT professional can cultivate an “ethics radar” by thinking about the ethical issues embodied in mini case studies, such as the five scenarios that Jennifer Kreie and Timothy Paul Cronan use to explore how IT professionals rely on codes of ethics for guidance (“Making Ethical Decisions,” Comm. ACM, Dec. 2000, pp. 66-71).

Scholars and practitioners from the supporting ethics community are also valuable references. This resource pool also includes educational programs, training (especially in multimedia and interactive formats), consultants, ethics advisors, and hard-copy and online documents including laws, codes of ethics, institutional policies and procedures, and ethics self-tests. (See the “Resources” sidebar for a start.)

CE2IT also allows the IT professional to give something back to the industry by contributing to the pool of ethical resources, an activity consistent with being a professional. One opportunity is to cooperate with in-house ethics training by providing a case study or scenario for discussion. The “Resources” sidebar includes links to sites that show how professionals can give back through IT ethics communities; they can

- help develop and review professional ethics codes,
- participate in the discussion forum of the Australian Institute of Computer Ethics,
- monitor the column on computer ethics at the Centre for Computing and Social Responsibility of
Over time, CE2IT adapts to continuing activity in all three elements—the IT professional, the world, and the resources for ethics enhancement—and their interactions. As IT continues to evolve, new issues arise, challenging current notions of ethical behavior. Governments will continue to enact, revise, apply, and sometimes overturn laws and regulations. Therefore, new guidance and insights (such as those expressed through moral positions, policies, and codes of ethics) become more influential in helping to shape the ethical behavior of IT professionals.

CE2IT is proposed as a way to see to it that IT professionals have a framework for approaching ethics:

- You don’t need to solve everything by yourself; there are resources to help you.
- Continuous enhancement is a practical strategy: Baseline your current ethics awareness, then work on steady enhancement because key elements are always changing and new situations arise with new applications of IT in society.
- Time may not permit ethical analysis, so sharpening your real-time ethics is essential.
- Periodic ethics training and facilitated discussions are excellent, and turning up your personal ethics radar will help you recognize when you need to bring that training to bear.

William W. Agresti is an associate professor of information technology at Johns Hopkins University. Contact him at agresti@jhu.edu.

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