



## Rethinking Engineering Ethics

By Jon A. Schmidt, P.E., SECB

The one branch of philosophy that most engineers encounter during the course of their careers is *ethics*, typically manifested in *codes of ethics* with which we are expected to comply. These formulations tend to focus on what engineers should and (especially) should not do when carrying out their professional responsibilities. This is probably because the two major types of modern ethical theories are largely concerned with a person's outward behavior:

- **Deontology** prescribes adherence to particular rules or fulfillment of particular duties or obligations. A paradigm case is the categorical imperative of Immanuel Kant – “Act only according to that maxim whereby you can at the same time will that it should become a universal law.”
- **Consequentialism**, as its name implies, evaluates a morally significant action on the basis of its consequences. Perhaps the most familiar version is the utilitarianism of John Stuart Mill, which advocates doing whatever will produce the greatest amount of happiness for the greatest number of people.

An engineering code of ethics usually represents a clear application of deontology, since it explicitly spells out the relevant rules, duties, and obligations. First and foremost is holding paramount the safety, health, and welfare of the public. Other common provisions include performing services only in areas of competence, being objective and truthful in public statements, avoiding conflicts of interest, competing fairly, pursuing professional development, and (more recently) embracing sustainability.

However, consequentialism also seems to play a role in engineering ethics. Engineers are frequently judged by society on the basis of the results of their work, whether intended or unintended; and technical codes and standards are often geared toward risk assessment and management, whether explicitly or implicitly. Uncertainty is unavoidable in engineering design, requiring the use of fallible heuristics; yet engineers are still subject to criticism when their judgment calls occasionally (and unfortunately) lead to failures.

Is there an alternative approach that might be better suited to the unique nature of engineering? A third school of thought has ancient roots but is now returning to prominence: *virtue ethics*. It differs from deontology and consequentialism by focusing on the person who acts, rather than the action itself; the emphasis is on *being* good, rather than *doing* good. Where deontologists argue about which set of commandments to follow and consequentialists debate how various outcomes should be weighted, virtue ethicists have diverse lists of the character traits that they consider to be desirable; i.e., *virtuous*.

In his 1981 book, *After Virtue*, Alasdair MacIntyre suggested that virtues can only be properly identified within the context of a *practice*. He defined this as “any coherent and complex form of socially established

cooperative human activity through which goods internal to that form of activity are realized in the course of trying to achieve those standards of excellence which are appropriate to, and partially derivative of, that form of activity.”

*Internal* goods are specific to a practice, can only be fully understood by those who participate in that practice, and generally benefit the entire practicing community. MacIntyre characterizes a virtue as “an acquired human quality the possession and exercise of which tends to enable us to achieve those goods which are internal to practices and the lack of which effectively prevents us from achieving such goods.” By contrast, *external* goods can be attained in a variety of ways, including different practices, often involving competition that leaves both winners and losers. Familiar examples include money, power, and status.

Although any practice requires a set of technical skills and the existence of institutions to sustain it over time, it is identical to neither of these. Every practice has its own history that goes beyond merely improving technical skills and serves as a tradition from which anyone who enters it must learn. Institutions are generally concerned with acquiring and distributing external goods, which is why virtues are so important – without them, the institutions’ pursuit of external goods will supplant the practice’s pursuit of internal goods, corrupting and ultimately destroying the practice.

This relationship between practices and institutions is especially relevant to engineers. As I have noted previously (“The Social Captivity of Engineering,” May 2010), engineering is intrinsically instrumental and can be utilized for a wide variety of purposes that are largely dictated by the institutions that employ and retain us. It is therefore critical that we recognize the goods that are internal to engineering practice, identify the virtues that will enable us to achieve them consistently, and actively strive to live accordingly. The results of this exercise should supplement, and perhaps supplant, the largely deontological codes of ethics that we now have. I plan to write more about this in the future; in the meantime, please tell me what you think. ■



What is the fundamental objective behind having a code of ethics for engineers? Which of the three major ethical theories best aligns with this goal? How should existing codes of ethics be modified or replaced accordingly? Please submit your responses and see what others have had to say by clicking on the “Your Turn” button at [www.STRUCTUREmag.org](http://www.STRUCTUREmag.org).

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