

A GIS Code of Ethics: What Can We Learn From Other Organizations? William J. Craig.

The GIS profession needs a code of ethics, but creating and adopting one is a daunting task. Partly the problem is that we are multi-disciplinary, and codes serve a single discipline/society. A bigger obstacle is not knowing where to start. One answer is to study the codes of other professional organizations, looking for guidelines or even statements that could be modified and adopted.

A code would help today's practitioners work through some of the tough issues facing the field, and its publication would provide a guidebook for new people entering the field. In this information age, a great many ethical issues have yet to be identified or decided, especially in such a new field as GIS. Mason and Collins (1986) identified four issues that need to be addressed by the information sciences: privacy, accuracy, property (ownership and pricing), and accessibility. Moving into the field of GIS expands the number of ethical issues and increases the changes for unethical behavior.

A number of recent articles have called for some kind of certification, accreditation, or licensing to help preserve the tenuously held good name of the GIS profession (Lester 1990; Obermeyer 1992; Goodchild and Kemp 1992). This is a difficult task given the multidisciplinary nature of GIS. A better means of keeping out charlatans would be to establish standards of performance, as embodied in a code of ethics. Rather than worrying about how someone was trained, his or her viability in the field would be based on performance.

A code of ethics can perform a variety of functions. Frankel (1989) lists eight roles that a code of ethics has played for professional associations. It:

- serves as an enabling document
- acts as a source for public evaluation
- aids with professional socialization
- enhances a profession's reputation and public trust
- preserves entrenched professional biases
- deters unethical behavior
- provides a support system for members
- acts as a basis for adjudicating disputes

These functions are goals that members of a profession aspire toward. A code of ethics is one means of accomplishing these goals.

CODES OF OTHER PROFESSIONAL SOCIETIES

My first encounter with a code of ethics was in 1986 when I joined AAPOR, the American Association of Public Opinion Research. I had just become director of the University of Minnesota's Center of Survey Research and needed contact with a professional association from which to learn and network.

The AAPOR membership form included their code of ethics which I had to sign as part of my application. That code includes a section on "Standards for Minimum Disclosure" for any survey (Table 1). Failure to comply with that or other parts of the code of ethics can lead to sanctions being placed against the person responsible for the survey and against the survey sponsor.

It seemed to me that the AAPOR code had something to offer the GIS community. I undertook a survey of other professional associations, asking for a copy of their code of ethics. Because the Encyclopedia of Association lists addresses geographically and because most professional organizations have a national headquarters near Washington, DC, I drew my sample from the District of Columbia, and the states of Maryland and Virginia. I selected organizations that had a focus in planning, social sciences, public affairs, natural sciences or the environment, or geographic sciences. In all, I sent out just over 100 requests. I received 48 responses, about two-thirds sent a copy of their code and one-third said they had no code.

Before presenting any analysis of the written codes, it is useful to present some of the reasons given for not having a code: the organization was too small, or had difficulty reaching consensus. Yet another was that federal regulations took care of any wrongdoing. This response scares me both because of the thought of outside regulation of a profession and because many ethical issues require thoughtful reflection—not black and white regulations. Indeed, one respondent argued that ethics are too difficult to codify. Two interdisciplinary societies assumed that their members adhere to the ethical codes of the organizations of primary affiliation. If the GIS community takes this stance, URISA will need to develop its own code.

TABLE 1. AAPOR'S Standards for Minimum Disclosure (abridged)

- 1) Who sponsored the survey and who conducted it
- 2) The exact wording of questions asked
- 3) A definition of the population under study
- 4) A description of the sample selection procedure
- 5) Size of sample and completion rates
- 6) A discussion of the precision of the findings
- 7) Which results are based on parts of the sample
- 8) Method, location and dates of data collection

TABLE 2. The Standard Code of Ethics: Obligations to Others

To Society in general

- work for the benefit of society
- prevent misuse of findings
- practice integrity
- pursue objectivity
- use due care
- do not withhold facts
- communicate findings widely
- strive for citizen involvement
- speak out when necessary

To Funders and Employers

- no conflict of interest
- be qualified
- no misleading marketing
- impartially provide alternatives
- don't sell same product twice
- no pre-empted or guaranteed outcomes
- hold their confidential information
- accept their decision unless illegal or against public good

To Colleagues and the Profession

- disclose sufficient information to allow verification of work specific to the individual discipline
- add to the field (knowledge, stature)
- cite work appropriately
- do not exaggerate prowess of field
- do not bump an engaged colleague
- evaluate others fairly
- report unprofessional conduct
- provide equal work opportunity
- know cross-disciplinary requirements

To Human Subjects

- maintain confidentiality
- obtain informed consent
- protect from harm and exploitation
- avoid undue intrusion

Structure and Content of Codes

Beneath the surface, there is surprising similarity among the codes of various Associations. Nearly half organize their Codes in this manner. *Obligations to society* usually override other considerations. Whether this framework is used or not, the items listed in Table 2 are both representative and fairly comprehensive. Of course the statements in any one code are usually much longer and more specific to the individual discipline, but rare is the statement that differs in nature from the items listed in this table.

Many organizations go into substantial detail on what is meant by these statements. Such detail is necessary if a code is to be enforced equitably. A particularly clear code of ethics has been produced by the American Institute of Architects. Each of the five general *canons* is clarified with one or more statements about *ethical standards*. In turn ethical standards are spelled out in specific *rules of conduct*. These are often accompanied by comments. The AIA is one of the organizations whose code includes an enforcement section.

Enforcement

The GIS community needs to decide if and how it will enforce any code of ethics. Not all organizations enforce their codes. A background note in the International Statistical Institute code reads, "... the aim of the Declaration on Professional Ethics for Statisticians is to document shared professional values and experience as a means of providing guidance rather than regulation....". But a significant number of professional societies have and use sanctions. AAPOR has been mentioned above. The ICMA (International City Managers Association) writes, "Unlike many professional associations, our code is aggressively enforced through a peer review process, and staffing assistance is provided". I feel that the GIS community should enforce its code of ethics. Procedures will need to be created for dealing with alleged violations and sanctions defined. Here again we can synthesize from the work of other professional organizations, notably AAPOR, AIA and ICMA. The procedures must be clearly articulated and must deal fairly with all parties.

The process usually starts with a complaint submitted by a colleague and ends with some judgment by the national organization. Typically a standing committee exists to deal with alleged violations. Such a committee is variously called: a judicial council, standards committee, or committee on professional conduct. That committee may establish a special investigative committee to deal with a specific case if preliminary information justifies going forward. The subject(s) of the inquiry is contacted and asked about the incident. The investigative committee submits a report to the standing committee along with a recommended action, which then goes forward to the full board of directors. An appeal process allows the subject a second chance to defend him or herself before sanctions are imposed.

Sanctions range from minimal to severe. And, of course, it is possible that the subject is exonerated. A list of typical sanctions follows, ordered from slight to severe:

- **Admonition**, a caution or advisory against such activity.
- **Private** censure, notification to the subject and complainant indicating that the code has been violated.
- **Public** censure, additional notice sent to the news media indicating the offender, the nature of the offense and the seriousness of the sanction.
- **Suspension** of membership, temporary revocation of membership.
- **Termination** of membership, a permanent bar to membership.

The multidisciplinary nature of GIS makes it difficult to enforce the last two sanctions. Surely URISA could deal with its own membership, but the offender could simply change affiliation. One answer would be for the five GIS/LIS organizations to band together, but what about the offender who needs no home? AAPOR answers that question by extending its jurisdiction to non-members working in their field and simply ignoring the membership suspending and terminating sanctions. We should take the stance that our GIS Code of Ethics exist as a standard of good practices should be followed by anyone working in the field. Those who use poor practices should be sanctioned whether or not they belong to any professional organization.

Explicit Statements about Good and Ethical Practices

While Table 2 provides general guidelines for a GIS code of ethics, it does not display the specificity that is needed to guide professionals or to justify sanctions. Expanding these statements and adding specificity will be necessary steps in creating any useful code of ethics for our specific field. In this section I begin that process in two ways. First, I've extracted intriguing statements from the collected codes, statements that might be adapted to our use. Second, I've nominated my own list of specific rules of conduct.

A number of pertinent statements made in the collected codes seem germane to the GIS audience and our current concerns over ethics. I have focused on those items dealing with personal integrity, with the public good, with the quality of research, with disclosure, and with education training requirements. Most of the statements I have identified are about doing high-quality work and would fall under "Obligations to Society" in Table 2.

Our code of ethics should be quite specific about the things that we deem most critical. I have my own list of critical items and what follows is my contribution to the first draft of the GIS code of ethics. In the terms of the American Institute of Architects, these are "rules of conduct," things so specific that they become guidelines for good practice and benchmarks for adjudication.

- Maps and other products should contain documentation about data sources, methods of analysis and the appropriate scale of use. Any map should have this information printed on its face so the information cannot become separated.

- Good cartographic techniques should be used. Map design should reinforce findings and not mislead readers. Map legends should be clear. Patterns and colors should be clearly discernible and class categories should be labeled clearly enough to avoid misinterpretation.
- Professionals should avoid using their skills and technology where they are inadequate to the task. In particular, they should refrain from using inadequate data or methodologies unless all parties clearly understand the limitations of such an undertaking and all products are clearly labeled as to their limitation.
- Proposals for work must be complete and honest. Submitting a bid that is inadequate to complete the task is dishonest. It is the responsibility of the professional to know his technology and procedures well enough that the amount requested will be sufficient. If there is doubt about the cost, this must be clearly stated in the bid, along with an estimate of the range of error.
- Work paid for by one client should not be resold to other clients at an unjustified price. It is reasonable to amortize good work across many clients, but not to have each pay full development costs.
- Data capture should be done using high enough quality measures to satisfy all potential users in the corporation. For example, CAD users should snap lines to closure within and across map sheets if there is a reasonable chance that their maps might be used in a GIS environment.
- No data about individuals should be released without their consent.
- Every policy decision has distinct impacts on different parts of the community and the GIS professional should know the impacts of any policies emanating from his or her work (Kaplan 1986). The professional should make these impacts known to policy-makers.

This is a beginning. More work is needed to expand and articulate this list.

Conclusions

The GIS community should develop and implement a code of ethics. If possible, that work should be done cooperatively among the five GIS/LIS organizations. Otherwise, URISA should do this on its own and hope the other organizations accept the code after it has been developed. It is important that the code be enforced and the more organizations imposing the sanctions, the bigger the impact. Furthermore, the joint use of a single code of ethics is an important component in creating the GIS Profession.

Any new code of ethics should build on the ethics work of other professional organizations. This paper has demonstrated that much work has been done by our colleagues. They have laid out the categories of concern and we need only fill in the detail. They have developed ways of enforcing their codes that we can emulate.

This does not mean that our work will be easy. There are many issues where we all agree and codification will be fairly simple. But there are other areas that are less clear and any committee will need to proceed carefully. Finally there are uncharted waters which are either now in dispute or which would try Solomon if he attempted an ethical stance.

It is important the GIS community begin working on a code of ethics. Deciding on explicit rules of good conduct will provide an invaluable checklist for practitioners—new and old alike. Taking a stance and saying “we want to behave ethically” is important both for the profession and for those whom we serve.

While the explicit rules are necessary to enforce the code, the very fact that we have a code will provide a clarion call to GIS professionals to think about the ethical impacts of their work. If we could do that it would have the effect of placing every one of us on the enforcement committee, each person monitoring his or her own work.

A committee of thoughtful people needs to be constituted to draft the initial code of ethics that will get us started. The sooner that work gets started, the sooner can it be confirmed that there is such a thing as a GIS Profession and that we are both ethical and reputable.

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