Ethics and GIS: The Practitioner's Dilemma

a position paper on GIS ethics by

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Introduction to the GI/GIS Ethics Workshop.

This is a background paper for a workshop on ethics and GI/GIS to be held at the AGI Conference 2004 in London, UK. The workshop format begins with a brief overview of ethics and introduction to the use of ethical 'case studies', followed by a small group discussion period, during which previously prepared GI/GIS case studies are examined in moderated groups of participants. The small group activity is followed by a plenary session for whole group questions and answers, ending with a summary session. Following the AGI Conference workshop in October 2004, the authors will update this document to reflect the issues that were of most concern to participants and re-issue it via the AGI Web site for use by others in conducting future workshops or seminars on this important topic and as a further resource for use in classroom instruction at undergraduate or graduate level in both GIS technology and GI Science courses.

One of the objectives of this workshop is to examine participants' understanding of how and why ethical questions arise when using spatial information and GIS tools and applications, e.g. potential use, misuse and abuse of GI enabled by modern GIS technology. Another objective is to gauge the participants' attitude towards whether or not a specific Code of GIS Ethics is needed for an organisation such as the Association for Geographic Information, a topic that was first examined by the AGI in 1994 (Dale, 1994). Finally, at the conclusion of the workshop, the workshop leaders will prepare a recommendation to the AGI based on these findings, including the scale, scope and proposed content for a GIS Code of Ethics for further consideration by the association or by similar associations.

Codes of Ethics - Guidance versus Sanctions

Codes of ethics serve a dual role. For societies or associations that do not implement formal professional qualification or certification standards for membership, a code of ethics or conduct still serves as a valuable guide for how members of that society should act in their employment and in relation to their colleagues, clients and society generally. This typically applies to trade associations or what we term "semi-professional" associations that offer membership to any persons with sufficient interest in the society's goals and objectives to be willing to pay an annual membership fee. The UK Association for Geographic Information (AGI) and the UK Remote Sensing and Photogrammetry Society (RSPSoc) both fall into this category[1].

Chartered societies award recognized professional membership classes, e.g. "chartered engineer", based on publicized standards of professional qualification and attainment of these standards by testing, continuing professional development, academic and employment accomplishments and various combinations of these three measures of professional attainment. Membership to such societies may even be required in some societies in order legally to conduct certain types of work for certain types of clients. These societies must guard the value of their membership awards for the benefit of all members, which leads in many cases to enforcement procedures for those who infringe the code of ethics or professional conduct.

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[1]   However, RSPSoc does confer two professional classes of membership - Fellow and Associate Fellow - not by examination, but by academic attainment and work experience history, assessed by a Professional Standards Committee. Some societies also require that "ordinary" members can only be considered by professional qualification assessment on the recommendation or endorsement of one or more existing professionally recognized members of the society, e.g. existing "Fellows" or similar.

There is not universal agreement on whether formal, legally binding sanctions are required or need to be strictly enforced in relation to achieving the ultimate goal of producing a code of ethics or professional conduct, e.g. to promote standards for ethical performance which members are expected to achieve via ethical behaviour. In one sense, imposition of sanctions indicates that the code of ethics has not achieved this goal, at least in respect to certain members' behaviour. This is an issue to be explored more thoroughly in the workshop, particularly from the point of view of members of a semi-professional (not chartered) trade association operating in the UK legal environment as opposed to chartered associations conferring recognized professional certification(s) or special licenses for members and operating in the legal environments of various nations.

Conferring professionally recognized qualifications, certifications or licenses requires dedication of significantly more resources from a society or association compared to offering "ordinary" or "individual" membership, by annual subscription, to any person (or sometimes company) interested in the goals of the society/association. Professional certification typically requires:

(a) creation and promulgation of a professional qualification curriculum or equivalent,
(b) creation and publication of a code of ethics, professional conduct and/or best practice,
(c) a membership vetting committee or professional standards committee to receive and evaluate membership applications or applications to progress to higher classes of membership,
(d) an ethical or professional standards committee to which complaints can be lodged against members of the society alleged to be in breach of the society's various codes,
(e) an appeals committee or legal procedure by which members can lodge appeals against allegations of conduct that could lead to loss of membership and/or certification,
(f) (typically) legal counsel to advise the society on the legal aspects of any sanctions that may be imposed on members, up to and including loss of membership or certification.

Many of the functions of the various committees mentioned above will be provided by volunteers, typically drawn from the more senior and experienced members of a society, as opposed to paid posts within the organisation. This, too, requires considerable additional commitment from such members to ensure that, once created, such posts remain filled within the society at all times and for as long as the society itself exists. Continuity is especially important in regard to professional qualifications, both from the viewpoint of the member and his/her clients or employers. Also, societies or associations considering the move from a non- or semi-professional member status to one that confers recognized qualifications may need to alter their charters, bye laws or articles/memorandum of association in order to do so.

Ethics and Societal Information Issues

After the introduction above, is it worth the effort to proceed with creating a code of ethics? We believe so. We are increasingly expected to make decisions rapidly, often in real-time. GI is being used in forecasting environmental risk and disaster management at a micro-level. Within the processes of globalisation, what occurs at a local level can have global impacts, for example terrorism, and what happens globally can have a local impact, e.g. the effects of climate change affecting house values for those unlucky enough to be located on flood plains or low-lying coastal areas. We expect to travel around the world and to have our 'identity' legitimated in real-time when we use a charge-card or credit-card to pay a bill, and we resent long queues at airports for immigration and identity checking. There is a societal expectation that we can move fluidly around the world with minimum time disruption, so should we worry about the 'electronic memory' that exists to legitimate those actions and the ability of

the location/temporal based data trail we leave behind to be abused if unethically misused? Can you remember what you purchased in a particular shop 6.5 months ago? The 'electronic memory' can, and can relate that purchase to other purchases in other locations and times. We exist now in an information environment where to disappear is to be under suspicion and where we cannot 'forget' our actions in the past since there is an electronic archive of those actions.

We operate in multi-organisational environments, being members of professional associations (sometimes multiple associations), having our own networks of information and contacts, being part of businesses that want to generate profits, and of agencies and organisations that want to create policy influence and also secure longevity. Multi-dimensional information and activity, combined with the imperative of speed, mean that ethics enter so many areas of society, yet they often are disregarded in a formal sense. We like to think we are ethical, but are we consistently applying formal ethical procedures?

Current societal themes and questions include:

- The breakdown of norms society – can concepts of citizenship and civil society bring back a perceived past ethical basis, or is our view of 'caring and social' past communities a sanitised and inadequate one?

- Information integration and 'function creep', i.e. information collected for one purpose being used for another.

- New forms of information and knowledge leading to new types of social and economic exclusion.

- Censorship and information conditioning (data scrubbing, spin and propaganda). Under what conditions should information producers remove information from the public domain (FGDC, 2004) and the media not publish material (DPBAC, 2002)?

- Suppression of information in the interests of commercial relationships, i.e. the identification of 'wrong' actions, but a failure to communicate this because it would damage relationships with a key customer.

- Forecasting change, such as sea-level rise or flooding, and not being responsible for liability issues that may arise, such as reduction in property value, as well as answering the question "Should I engage in such research if it has both good and potentially harmful outcomes?".

- New military information warfare, i.e. the contribution of GI, GIS and converging location-based technologies to killing people.

- Contests regarding the quality and integrity of official information, e.g. challenges to the Census of Population.

- It is ethical to impose conditions on others so that they conform to the political views of your own country? Imposed ethics, such as software contracts and licenses that forbid 'enemy' States using an application.

- Should workplace emails be intercepted by the employer to check whether sensitive or confidential material is being disseminated?

- If you use one envelope from your workplace for personal reasons is that 'stealing from your boss'?

- Should the names and addresses of paedophiles be disseminated on the Internet, as it is under Megan's law in the USA? The American Civil Liberties Union argues "first, it

heightens the risk of harassment and discrimination of those who have already served their time. Second, it fails to consider whether the individual continues to pose a risk to the public." (Scheeres, 2004)

- Is it ethical to teach hacking techniques to IT students on the basis that they may need such 'skills' if they enter the security industry?

- Is it ethical to implant an RFID chip in an elderly relative so that we can monitor their location(s) electronically for their own safety? (Biever, 2004)

- Is it ethical to monitor the movements of our children through their mobile phones, GPS, and online mapping? (Murphy, 2003)

- Is there an ethical right to 'negative liberty', e.g. where we can do things unless they are explicitly forbidden? This involves Freedom of Information and Freedom of Speech laws in the USA allowing citizens to voice and promote racism, disseminate hard-core pornography, and stop public access facilities such as libraries from censoring content or using parental filters.

- What are the ethics surrounding perceived or real monopoly exploitation of dominant data supply activity, or dominant market position?

- What are the ethics surrounding the unfair exploitation of a privileged position within an organisation (not declaring an interest, or insider trading) or within a professional association?

- What are the ethics surrounding intellectual property exploitation and appropriation in developing nations?

- Are ethical initiatives such as the UK's HMSO Ethical Information Fair Trader Policy a suitable approach (HMSO, 2004)? Annex A contains one organisation statement and key points from the first review.

- What are the ethical dilemmas and potential liability in a government agency making statements about risk and future danger? When the UK Environment Agency first launched the 'What's in your backyard' Web facility (Environment Agency, 2004), an early version of the data showed significant potential flowing in Durham, but a few weeks later the image showed less potential, and now the service has a clear requirement for those using it to accept the limitations and conditions of the data. Screen images will be shown in the presentation.

Acting Ethically

Before we can rationally discuss ethical issues relating to spatial information and technology, we need to agree on a definition of the term "ethics". Ethics refers to principles of human conduct, or morals, and to the systematic study of such human values, or the study of theories of conduct and goodness and of the meanings of moral terms, which is called moral philosophy. An act is considered to be 'ethical' if it agrees with approved moral behaviour or norms in a specific society. Ethics also implies civic responsibility on the by citizens towards each other and to society as a whole, and responsibility by society's institutions, including governments, towards citizens and other societies. Ethics concerns itself with questions such as when is an action 'right' or 'wrong' and what standards separate 'good' from 'bad'.

For the purposes of this paper and the workshop, we propose that participants accept one of the basic beliefs of modern moral philosophers, i.e. that reason and logic (relating to one's actions) are the authority invoked for 'good' and that moral behaviour results from rational thought that does not harm the individual and leads ultimately to the greatest good for all

individuals in a society (Hook, 1978). Professional ethics is defined by the Royal Institution of Chartered Surveyors (RICS, 2000) as "giving of one's best to ensure that clients' interests are properly cared for, but in doing so the wider public interest is also recognised and respected."

Information is a powerful tool and spatial information perhaps even more so. Although an individual's personal ethics may determine 'good' or 'bad' behaviour as far as that individual is concerned, use (and abuse) of information is governed by society as a whole, typically regulated by the government in power. Sadly, the ethics of governments do not always reflect the ethical values of all of its citizens, nor remain constant in time, e.g. due to changes in government, and styles of government vary widely across the globe, yet globalisation brings all of us ever closer, especially with regard to information:

Ethics, or acting ethically, is also not a static thing, but rather a process, as recognised by RICS in their guidance notes to members

> "Ethics are not a fixed text to be learnt once. It is a way of reviewing behaviour against constantly changing standards. What may be ethical today, or in a particular society, may be viewed differently by others or at another time." (RICS, 2000)

Ethics and Trust

"Ethics are fundamental to the building of trust between technology and the public" (Little and Fearnside 2000). An OECD report on building trust in public institutions states that citizens trust public institutions if they know that public offices are used for the public good. Lessons from an OECD survey suggest the following steps for building trust in public institutions:

- Define a clear mission for the public service.
- Safeguard values while adapting to change.
- Empower both public servants and citizens to report misconduct.
- Integrate integrity measures into overall management.
- Co-ordinate integrity measures - a precondition for success.
- Shift emphasis from enforcement to prevention.
- Anticipate problems.
- Take advantage of new technology.

(OECD 2000, p.5)

The GI/GIS ethics debate takes place under the umbrella of the more general and long-standing debate on computer and information ethics that includes transparency of practice, obligations for freedom of information and for data protection. For example:

> There can be no place in a democracy for secrecy regarding the relationship between rulers and ruled. The principle immediately suggests itself (though it is indifferently observed in practice) that the onus is squarely on the representative of officialdom to show why secrecy is necessary in a particular sort of case, and not on the opponent to make out a case for disclosure (Brown, 1990)

The last statement puts the onus on government to release information proactively, rather than under duress or through request. Does that then mean that a government employee, having signed a confidentiality agreement as part of their employment, should 'leak data'?

> Ideals of transparency and openness are now so little questioned that those who 'leak' or disseminate confidential information (other than personal data) often expect applause rather than condemnation, and assume that they act in the public interest rather than betray it (O'Neill, 2002)

In her 2002 Reith Lectures, Onora O'Neill asked a fundamental question about transparency and trust, and that related to what she called 'reciprocal' trust, where the rights of the consumer of trust are also strongly related to the social and ethical obligations that the consumer should practice. She went on to state:

> Perhaps it is not then surprising that public distrust has grown in the very years in which openness and transparency have been so avidly pursued. Transparency certainly destroys secrecy: but it may not limit the deception and deliberate misinformation that undermine relations of trust. If we want to restore trust we need to reduce deception and lies rather than secrecy (O'Neill, 2002).

Learning from Other Ethical Debates and Codes

It is important that GIS practitioners, and other ICT professionals, remember that codes of conduct, statements of ethical principles and codes of practice are found in many other information handling professions, many with long histories, not just in law or medicine, engineering or government service. The UK National Union of Journalists Code of Conduct has set out the main principles of British and Irish journalism since 1936. It is part of the rules of the union and all journalists joining the union must sign a statement that they will strive to adhere to the principles, which include:

1. A journalist has a duty to maintain the highest professional and ethical standards.

2. A journalist shall at all times defend the principle of the freedom of the press and other media in relation to the collection of information and the expression of comment and criticism. He/she shall strive to eliminate distortion, news suppression and censorship.

3. A journalist shall strive to ensure that the information he/she disseminates is fair and accurate, avoid the expression of comment and conjecture as established fact and falsification by distortion, selection or misrepresentation.

4. A journalist shall rectify promptly any harmful inaccuracies, ensure that correction and apologies receive due prominence and afford the right of reply to persons criticised when the issue is of sufficient importance.

5. A journalist shall obtain information, photographs and illustrations only by straightforward means. The use of other means can be justified only by overriding considerations of the public interest. The journalist is entitled to exercise a personal conscientious objection to the use of such means.

6. A journalist shall do nothing which entails intrusion into anybody's private life, grief or distress, subject to justification by overriding considerations of the public interest.

7. A journalist shall protect confidential sources of information.

8. A journalist shall not accept bribes nor shall he/she allow other inducements to influence the performance of his/her professional duties.

9. A journalist shall not lend himself/herself to the distortion or suppression of the truth because of advertising or other considerations.

10. A journalist shall mention a person's age, sex, race, colour, creed, illegitimacy, disability, marital status, or sexual orientation only if this information is strictly relevant. A journalist

shall neither originate nor process material which encourages discrimination, ridicule, prejudice or hatred on any of the above-mentioned grounds.

11. No journalist shall knowingly cause or allow the publication or broadcast of a photograph that has been manipulated unless that photograph is clearly labelled as such. Manipulation does not include normal dodging, burning, colour balancing, spotting, contrast adjustment, cropping and obvious masking for legal or safety reasons.

12. A journalist shall not take private advantage of information gained in the course of his/her duties before the information is public knowledge.

13. A journalist shall not by way of statement, voice or appearance endorse by advertisement any commercial product or service save for the promotion of his/her own work or of the medium by which he/she is employed.

(NUJ 2000)

Information is information, after all, and geographic information, misused or abused, can cause similar or worse harm to persons or society as can unethical journalism. As we continue to examine several codes of conduct and sets of ethical principles from organisations operating in the spatial information and ICT industries, it is interesting to refer back to the NUJ Code of Conduct and note many striking similarities.

Information Ethics, Computer Ethics and GI/GIS Ethics

Neither data nor information are inherently 'unethical'. Rather, the uses of data and information can be potentially unethical, and this is where computer software and applications, dissemination networks and various data policies enter the ethical debate.

Ethical use of information received global attention with convening of the first INFOethics Congress in the Principality of Monaco in March, 1997 under the aegis of UNESCO's Information and Informatics Division, the "First International Congress on Ethical, Legal, and Societal Aspects of Digital Information". This was followed by INFOethics 1998, also held in Monaco in October 1998, which focused on "Ethical, Legal and Societal Challenges of Cyberspace" (UNESCO, 1998). The third Congress, INFOethics 2000, held in Paris in November 2000, considered "Right to Universal Access to Information in the 21st Century". The many papers, background studies, reports and resolutions issuing from these three important conferences underline the level of global concern about society's approach to the ethics of information use and abuse.

Allied to this debate is that of access to information in the public sector and the ethics of what comprises 'public sector information', which may or may not be available in the public domain, as stated in recent UNESCO-backed guidelines regarding public sector information (Uhlir 2003):

> "One of the ultimate goals of any society is the empowerment of all its citizens through access and use of information and knowledge. Every person and every nation must have equal opportunity to benefit from cultural diversity and scientific progress as a basic human right in the current information revolution and the emerging knowledge society."

Participants at INFOethics 2000 enjoined information producers, users and governments to promote "ethical behaviour and respect for community standards and values in respect of the activities and content of information producers, users and service providers. Public authorities

should ensure that all ICT training within their national jurisdictions includes training on ethical awareness and standards and not just on technical competence." (UNESCO, 2000)

With regard to spatial information, i.e. information with an important location attribute, several types of ethical issues arise in relation to collection, dissemination, use and abuse of such information:

- ethical application of intellectual property law, especially for copyright, e.g. the right to re-use spatial information for one's own purposes and how/where is IPR law being challenged on what can be construed as 'ethical' grounds;

- ethics regarding rights of citizens for access to information gathered at public expense;

- moral obligations for governments to create frameworks and infrastructure, both legal and physical, permitting universal access to information, especially that in the public domain or for public sector information not already in the public domain;

- protecting personal privacy by preventing unethical use of publicly available information, especially spatial information that can be used to track individuals.

Although information ethics has a much shorter history than that of traditional ethics, which spans at least 2500 years, there is much literature covering the topic, and we attempt to provide links and references in this paper to many sources of such information and debate. The terms 'information ethics' and 'computer ethics' appear to be used interchangeably and sometimes with some confusion. Strictly speaking, debates surround 'information ethics' can be technology independent, as information exists and can be used, misused and abused without the help of computer systems. However, as noted earlier, that data alone is neither 'ethical' nor 'unethical', but rather its use is, this is where much of the debate on 'computer ethics' is focused. For a more complete grounding in the basic debates and thinking surrounding information ethics, we suggest following the links to the work of Luciano Floridi (Floridi, 1998) and Margaret Lynch (Lynch, 2000) in the references, which are accessible via the Web and contain substantial references, bibliographies and hyperlinks to supporting papers and conference proceedings.

Computer Ethics (CE) shares with other philosophical disciplines in the analytic tradition three important but rather too general features:

1. it is logically argumentative, with a bias for analogical reasoning,

2. it is empirically grounded, with a bias for scenarios analysis, and

3. it endorses a problem solving approach.

Besides 1–3, CE also presents a more peculiar aspect, which has so far acted as its driving force, namely:

4. it is intrinsically decision-making oriented.

5. it is based on case studies.

(Floridi 1999, p.37-38)

Scanlan proposes that the role of computer ethics is not to develop a general theory of principles of information privacy to be applied to incidents of conflict about computerized information. Rather, computer ethics looks at the cases of moral conflict that arise due to, or enabled by, computer technology, stressing that these are moral conflicts and that some generalities do apply. For example, individuals and organizations have an obligation to prevent foreseeable harm from dissemination of information they may possess. Computer ethicists can clarify for information professionals and for lay persons (citizens) the open-

ended character of moral adjudication. "Clarification" in this context means, in particular, that the lack of a prescribed method of settling many moral conflicts does not indicate the failure of moral philosophy, but rather is a feature inherent in the nature of moral conflict. (Scanlan 2001, p.12)

Introduction to GIS Ethics

The topic of ethics as applied to the GIS professional and the GI industry has witnessed renewed interest in the past 18 months with the publication of codes of ethics by organisations such as URISA (Urban and Regional Information Systems Association) in the USA in April 2003 (URISA, 2003) and CILIP (Chartered Institute of Library and Information Professionals) in the UK in May 2004 (CILIP, 2004). Codes of ethics or professional conduct are found in many industries, especially as part of professional accreditation or development programmes. In many occupations, such as the medical and legal professions, surveying, and architecture, codes of ethics or professional conduct are further enforced by sanctions, legal or economic, ranging from formal, public reprimands to fines of various degrees of severity to revocation of accreditation, potentially preventing a practitioner from practicing his/her profession. Other semi-professional, commercial or trade associations also publish codes of ethics or professional conduct both as guidelines for their members and as targets to be achieved in practice. Some organisations publish codes of 'best practice', which do not relate directly to the ethical issues that are the focus on this paper and workshop, but rather relate to good business practice, for which sanctions are seldom invoked.

The UK's Association for Geographic Information (AGI) falls into the category of a semi-professional trade association, in which membership is open to all mainly by subscription, although members tend to be graduates or professionals dealing with spatial information technologies, research and business. However, the AGI is also considering a professional development programme that could one day lead to recognized accreditation. Regardless of whether or not this is achieved, and it is work still very much in progress, members of the AGI typically are information professionals from many different areas of expertise. AGI members are ICT specialists of many types, GIS software and applications developers, surveyors, agriculture and forestry scientists, epidemiologists, geologists, remote sensing experts, coastal zone and marine environment managers, transport planners, rural land use planners, urban planners, local government officers from many areas of responsibility. The list is extensive and expands as society becomes ever more complex and GI is recognized increasingly as being an underpinning data asset exploitable by diverse stakeholder groups via GIS and ICT technology.

As with other difficult topics arising within the 'GI community', many of which are complicated by the oft stated observation that "GI is everywhere", ethical use of spatial data and allied enabling technologies is also complicated by the wide range of actors within this 'community'. Just as few geologists attend epidemiology conferences, even though both groups of practitioners use GI and GIS, it is difficult to present, discuss and debate ethical issues to such diverse audiences via the traditional information ethics tool of the 'ethics case study' - but not impossible. Rather, this approach requires development of a wide range of such case studies, just as most GIS vendors and GI associations spend considerable effort in creating a wide range of application case studies to impress customers - and politicians - of the importance of GI and GIS. Customers and politicians seldom invest in technology alone - they want solutions.

We hope that this paper helps set the scene for a workshop that defines ethical issues relevant specifically to spatial information and services, typically enabled by technologies that

increase in power daily while also converging. A decade ago, Prof. Peter Dale produced his ethics and professionalism report for the AGI in the UK (Dale, 1994) and William Craig was reporting on GIS codes of ethics for URISA in the USA (Craig, 1993). At that time, the existence of readily affordable (eventually to be ubiquitous) third generation mobile phones, equipped with broadband video capability as standard, able to pinpoint your personal location to within metres while connecting you to a global Internet to access services - and mobile spam - from providers around the world, was a dream. Today, it is nearing reality.

The basic 'right' versus 'wrong' or 'good' versus 'bad' interpretations of our actions, which constitute 'acting ethically' within the accepted norms of our particular society, may not have changed intrinsically in the intervening decade. Yet the situations and environments - commercial, social, personal - in which such decisions are made, have altered dramatically. As members of an active GI/spatial information community, both as creators of data, technology and applications, and as users of the same, we ignore considering the ethical issues at our peril, both in the near term and long term.

Why Concern Ourselves?

In this workshop we will focus on ethics in relation to GI and GIS, recognizing that spatial data itself is seldom either 'ethical' or 'unethical', rather its use, abuse and misuse, either with or without spatial analysis technologies, lead to the true ethical questions. Given the generally promoted view that GI is 'ubiquitous' in information space and underpins so much of our society, economy and government, we also argue that all ethical issues impinge on the GI community. Indeed, if GI is really that important to society, then the GI community should have the strongest ethical statements and practices of any sector in the information society, globally.

Each one of you at this workshop has a reason to consider ethics, especially if you are an AGI member. Under the AGI Constitution you may be expelled from the Association through a decision by Council, yet the possible reasons for expulsion are not explicitly stated, and therefore could be regarded as only being through non-payment of fees. In the USA, persons seeking formal, professional certification from the GIS Certification Institute must sign an acknowledgement form (GISCI, 2003) that they understand and will abide by the URISA GIS Code of Ethics, and that failure to do so may result in their professional certification being revoked. For the AGI, in the absence of a formal code of ethics or professional conduct signed by a member, could the Council realistically expect a court of law to accept expulsion of a member for any reason other than financial, e.g. failure to pay dues? Furthermore, if ethics are so important, can we find a body of case law where people have been expelled/prosecuted on ethical grounds, or are ethics just loud words and soft actions? Should ethics be viewed more as methods of achieving best practice, in the same way that the South Africa 'Truth and Reconciliation Commission' did by not 'expelling' those who offended, but by healing rifts and promoting better practice for the future?

Ethics pervade our daily life. The UK Civil Service must operate according to the 'Nolan' principles of public service. We are invited to think ethically about our lifestyles: is it ethical to smoke since we know the cost that is imposed on the health service, not to mention nearby non-smokers? Should we eat food that is chemically or genetically enhanced? Should we purchase fruit in our supermarket that was grown on the other side of the world by an exploited labour force, and then flown to our markets, thus burning up the ozone layer? Is it ethical to gossip about someone in the Conference bar? Is it ethical to spread rumours? We face ethical paradoxes all the time.

For example, there is no guarantee that the absence of a formal ethical policy means that an organisation or individual is not ethical, and there is no guarantee that a formal adoption of an ethical or transparency policy will directly lead to an ethical organisation – the experience of the UK Press Complaints Commission is indicative of that paradox. What therefore may be required is external independent audit of an ethical policy. Indeed, in the paranoid atmosphere of global terrorism, breaches of guidelines and function creep are occurring:

> Last year JetBlue secretly gave personal information on some 5 million passengers to a private contractor, Torch Concepts of Huntsville, Alabama, that is working on a data mining project for the Bush administration. A presentation prepared by Torch Concepts describes how it merged the JetBlue database with U.S. Social Security numbers, home addresses, income levels, and vehicle ownership information it purchased elsewhere. Now JetBlue is facing lawsuits over the apparent breach of its privacy policy, which assured its Web customers that "financial and personal information collected on this site is not shared with any third parties." (McCullagh, 2004)

The ethical debate is not new, and has been active within GI for many years, as this example from 1977 indicates:

> So there is nothing innocent about computer cartography, and certainly not about geographic information systems. Underlying all of the glossy products and clever techniques there are vital ethical issues. Should one accept research money into the integration of different geocoded data sources if there is a high likelihood that security agencies will benefit from it and so restrict personal freedom yet further. Should academics continue to develop better modelling systems for relief representation when the weapons potential of these is obvious? Already computer mapping has aided some of the deadlier weaponry of the nuclear age - the Cruise Missile. (Richardson, 1977)

A final consideration is that of promulgating a code of ethical principles or professional conduct versus enforcing such codes via disciplinary means.

Existing Codes of Ethics or Professional Conduct

Following is a brief review of the codes of ethics or professional conduct enacted by various organisations operating in the geospatial arena, including surveying, remote sensing and photogrammetry. Our goal is to focus on commonalities in the content of these various codes to elicit the core sub-set of issues or themes that such a code should incorporate, then to see how this might apply to a trade association such as the AGI as opposed to a chartered professional body, such as RICS (Royal Institution of Chartered Surveyors) or RGS-IBG (the Royal Geographical Society - with the Institute of British Geographers).

Three further codes of ethics/professional conduct are also included from chartered societies whose members engage in GIS-related work or technology development. These are the Association for Computing Machinery (ACM) in the USA, its UK equivalent, the British Computer Society (BCS), and the UK's Chartered Institute for Library and Information Professionals (CILIP), the institute formed from merging in 2003 of two previously chartered UK societies, the Library Association and the Institute for Information Scientists. This latter comparison is interesting as it highlights the commonalties in codes of ethics that exist outside the purely GI/GIS-related associations but within institutes whose membership are information professionals in the broadest sense.

We will also examine various issues regarding enforcement of codes of ethics/professional conduct, since many feel that, without enforcement, there is little role for such codes to play in the constitution of professional bodies. This view does not preclude formulating and adopting a code of ethics, which can serve other purposes, as is indicated in the following sections. However, legal enforcement, e.g. by disbarring or excluding professional members from their societies or rescinding status as "chartered members" of a professional body, brings with it added legal issues, costs, and engagement of human resources in the form of ethics review committees, arbitration committees, or, in some cases, the entire membership of an association.

AICP - American Institute of Certified Planners (USA)

The Code of Ethics and Professional Conduct of the American Institute of Certified Planners (AICP) was adopted in October 1978 and most recently amended in October 1991, thus conferring it with one of the longer histories for the codes reviewed in this paper. This Code is described as "a guide to the ethical conduct required of members" of the AICP, which also "aims at informing the public of the principles to which professional planners are committed." (AICP, 2004) The code is found in Annex F and is presented in four parts, covering:

- the planner's responsibility to the public,
- the planner's responsibility to clients and employers,
- the planner's responsibility to the profession and colleagues,
- the planner's self-responsibility.

As to enforcement procedures, the preamble to the code states:

> "The Code's standards of behaviour provide a basis for adjudicating any charge that a member has acted unethically. However, the Code also provides more than the minimum threshold of enforceable acceptability. It sets aspirational standards that require conscious striving to attain." (AICP, 2004)

Under the four main headings listed above, key goals of the ethical policy of AICP are expressed as (AICP, 2004):

- A planner's primary obligation is to serve the public interest. While the definition of the public interest is formulated through continuous debate, a planner owes allegiance to a conscientiously attained concept of the public interest, which requires … special obligations.

- A planner owes diligent, creative, independent and competent performance of work in pursuit of the client's or employer's interest. Such performance should be consistent with the planner's faithful service to the public interest.

- A planner should contribute to the development of the profession by improving knowledge and techniques, making work relevant to solutions of community problems, and increasing public understanding of planning activities. A planner should treat fairly the professional views of qualified colleagues and members of other professions.

- A planner should strive for high standards of professional integrity, proficiency and knowledge.

(AICP, 2004)

ASPRS - American Society for Photogrammetry and Remote Sensing (USA)

The code of ethics of the American Society for Photogrammetry and Remote Sensing (see Annex G) states that "Honesty, justice, and courtesy form a moral philosophy which, associated with mutual interest among people, should be the principles on which ethics are founded. **…** Each person who is engaged in the use, development, and improvement of the mapping sciences (Photogrammetry, Remote Sensing, Geographic Information Systems, and related disciplines) should accept those principles as a set of dynamic guides for conduct and a way of life rather than merely for passive observance." (ASPRS, 2002)

The ASPRS Code of Ethics, containing seven simple statements, is brief, yet encompasses the primary principles to be found in most similar codes within the GIS industry. It stresses maintenance by ASPRS members of "high professional standards" and creating trust with clients, employers, and other professionals by giving credit where credit is due. Competition with others in the mapping sciences professions is to be fair in all aspects and members should seek to strengthen mapping sciences by professional and personal development, undertaking only the work for which they are truly qualified. A final clause relates to respect for "proprietary, privacy, legal and ethical interests and rights of others". There is no mention of enforcement procedures by ASPRS against members who might breach the code.

FIG - International Federation of Surveyors (international)
FIG, the International Federation of Surveyors, founded in 1878, is a federation of national surveying associations and is a UN-recognised non-government organisation whose aim is to ensure that the disciplines of surveying and all who practise them meet the needs of the markets and communities that they serve. FIG promotes the practice of the profession and encourages development of professional standards.

FIG operates via ten "commissions" and Commission 1 – Professional Practice - is responsible for "Ethical principles and codes of professional conduct; guidelines relating to the provision of services; standards of business practice and total quality management; changes affecting the operation of surveying practices, their management and their professional structures; international legislation affecting the profession including the liberalisation of trade in services; the role of surveyors in the public service." (FIG, 2003) FIG presents its ethical code in two parts - a professional conduct code and separately stated ethical principles. The full code is contained in Annex E.

Because FIG is international by definition, it recognises that "differences of culture, language, and legal and social systems" requires that specific codes of conduct must be prepared by each of its members, who are then also responsible for promulgating the code and enforcing it. Because surveyors operate globally, FIG also recognises the importance of establishing "common ethical principles and codes of professional conduct." The preamble to the FIG codes proceeds to define what it means to be "a professional", that such professionals must recognise their ethical responsibilities (to the public, clients, peers, employers and employees), and should operate with a "sense of duty … using their expertise for the enhancement of society and stewardship of resources."

The FIG Ethical Principles include (FIG, 2004):

- Integrity **-** **"**maintaining the highest standards of honesty and integrity towards those with whom they come into contact, either directly or indirectly" and to "accurately and conscientiously measure, record and interpret all data and offer impartial advice based thereon."

- Independence **-** "diligently and faithfully executing their role according to the law; and maintaining their objectivity … give their clients and employers unbiased advice, without prejudice or favour either towards or against other organisations or persons."

- Care and Competence - "maintain their knowledge and skills, keep abreast of developments in their fields of practice and apply their expertise for the benefit of society" while taking on work only if "they reasonably believe they will be able to carry (it) out in a professional manner" and exercising "care in the performance of their duties."

- Duty **- "**maintain confidentiality about the affairs of … clients and employers unless required by law to make disclosures … avoid conflicts of interest ... take environmental concerns into account in their operations and activities … recognise the interests of the public when providing services to their clients or employers … conduct their work to the best of their ability, giving due consideration to the rights of all parties."

A separate section of the code, the "Model Code of Professional Conduct" defines further the "duty to the public" and what is in the public interest, as a "code of conduct as the minimum to be expected of all professional surveyors." This code includes:

- Surveyors should "exercise unbiased independent professional judgement", acting competently within the scope of their abilities while continuing to build their professional skills and not accepting assignments beyond their resources or abilities.

- Surveyors should assume responsibilities to and for their employees, including ultimate responsibility for work carried out by employees, further education and training, suitable working conditions and instilling integrity in employees.

- When dealing with clients, surveyors should avoid professional impropriety, disclose possible conflicts of interest, preserve confidences and privileged information, maintain confidentiality after completion of work and maintain openness and transparency in regard to multiple payments for one project from multiple sources.

- Surveyors should be honest, open and transparent with clients in regard to remuneration for their work, should not act fraudulently, and "not sign certificates, reports or plans" that were not prepared and completed under their own supervision.

- Surveyors' responsibilities to their association(s) include reporting unauthorised practice to their government body, not supporting applications for professional status for persons known to be unqualified for such status, and promoting the profession to clients and the public.

- As to business practices, surveyors should not make false, misleading or fraudulent statements in promotional material, not "undermine the reputation or business prospects of other surveyors", not poach clients from colleagues and not to mislead potential clients by establishing sub-offices purporting to be managed by professional surveyors unless such is the case.

- Finally, surveyors are to face environmental issues "with perception, diligence and integrity", understand the issues, seek additional advice on such issues where necessary, notify clients of specific issues that need attention, include cost of environmental protection and remediation in project evaluations, and "encourage additional environmental protection when the benefits to society justify the costs."

Because FIG is an "association of associations", its committee structures regarding membership and enforcement of codes of conduct and ethics are dissimilar to those of the

national professional surveying bodies that are its members. Rather, FIG sets the global ethical standard for the surveying profession that all members are to strive to attain.

Institute for Environmental Studies (Univ. of Wisconsin-Madison, USA)

A report describing research into a code of ethics for GIS professionals was prepared by the Institute for Environmental Studies at the University of Wisconsin-Madison, USA, in the Environmental Monitoring Program, in 2001. The code "present goals and aspirations that professionals should strive toward throughout their careers" (IES, 2001). The full report, contained in Annex I, includes useful application notes and a description of the ethical decision making process. The main issues that the report authors feel should be stressed in a GIS code of ethics are listed below, taken from that report.

Social Implications

- Promote procedures that protect health, safety and welfare of people and the environment and meet and institutional objectives.
- Consider the short and long-term relevancy
- Represent your organization in a socially responsible manner
- Contribute to society's well being
- Respect the privacy of others
- Avoid causing harm
- Evaluate moral and legal imperatives

Professional Integrity

- The GIS professional shall be diligent about the completion of his or her duties, and do so in such a way that it reflects well on the individual and the profession.
- Respect privacy - follow all relevant laws on privacy and disclosure.
- Be open and transparent about limitations and uncertainty in data
- Avoid misleading data presentation
- Avoid conflicts of interest
- Understand limits of competence
- Acknowledge other's contributions

Competency and Professional Development

- Continue to upgrade professional knowledge and skills.
- Maintain professional knowledge; seek information about current laws, accepted practices, and relevant standards pertaining to professional work.
- Maintain an interest in professional organizations and their activities.
- Accept and provide appropriate employment review.
- Consult, when necessary, with colleagues in their areas of expertise.
- Continue to develop professional skills that supplement technical skills, such as communication, project management, and productive peer relations.

Professional Relations

- Encourage others to adhere to this code.
- Seek the advice from one's colleagues when faced with an ethical dilemma.
- Review the work of others in an objective, candid, and properly documented way.

- Respect and seek, when necessary, professional review and opinions from colleagues in their areas of competence.
- Give a fair hearing to the opinion, concerns, or complaints of a colleague.
- Do not unfairly intervene in the career of any colleague; however concerns for the employer, client, or the public interest may compel GIS professionals, in good faith, to question the competence of a colleague.
- Assist colleagues in professional development.
- Take appropriate action if one discovers a colleague engaging in unethical behavior.

Professional Responsibility

- Work toward the best possible data quality and integrity
- Assure Accountability
- Promote public knowledge of correct use of GIS
- Comply with laws and mandates
- Keep current with this code and any updates or amendments
- Adhere to appropriate data security procedures
- Acknowledge any sources of data that are used in any project

The report concludes with the observation that

> "A code can establish goals the professional can aspire to, set guidelines for professional expectations, and serve as a source of public evaluation. An ethical code of conduct is needed for the GIS professional as they are entering an evolving field of technology and an explosion of access to information. A GIS code of conduct will benefit both society and the field of GIS." (IES, 2001)

RGS-IBG - Royal Geographical Society (with Institute of British Geographers((UK)

The professional code of conduct for the RGS-IBG is relatively concise, with an opening paragraph stating that Chartered Fellows of the RGS-IBG will act "in a manner worthy of the honour and interests of the profession of geographer and the Society" and will do nothing to bring the profession or Society into disrepute. Fellows are charged to act always to safeguard the interests of the public and to discharge their professional responsibilities with integrity. Seven "rules of conduct" are listed (see Annex D for the full text) covering the basic principles set out above plus enjoining Fellows not to act in areas where they do not have relevant experience or knowledge, to maintain their professional competence and to uphold the Society's equal opportunity commitments. Provision is made for investigating allegations of breaches of the Code of Conduct and for disciplinary actions to be taken against Fellows if such breaches are confirmed. The entire code, including the disciplinary procedure, requires little more than one and a half pages of text, which demonstrates that such codes need not be lengthy documents, as long as the basic principles are clearly set out and members of the society are aware that disciplinary actions may be taken and how.

RICS - Royal Institution of Chartered Surveyors (UK)

The Code of Conduct of the RICS is embodied in Section V of their Bye-Laws of 1973 (see Annex C for full text of the relevant sections). The text is substantial, running to some five pages covering areas such as the general principles of conduct, responsibility of members for

their firms, procedures for formal disciplinary action including appeals procedures and members' duties and powers of the institution to discipline members found to be in breach of the code. The RICS approach to professional conduct is thus much more formalised than that of the RGS-IBG, since chartered surveyors have legally mandated duties and responsibilities (in the UK) that do not necessarily apply to a Chartered Fellow of the RGS-IBG.

Of special interest are the quite formidable powers of the institution to discipline members found to be in breach of the Bye-Laws or Regulations, ranging from cautions and reprimands to heavy financial fines and even expulsion from the institution. This final sanction can have serious economic repercussions on the member so disciplined, as loss of RICS membership can dramatically reduce the range of commercial work that the member can undertake, especially with larger firms, such as insurance companies, etc., where a "chartered surveyor" is required.

Key principles in the RICS Code of Conduct include the requirement to avoid conflicts of interest, a commitment to lifelong learning and financial probity, i.e. maintaining adequate liability insurance for the type of professional work undertaken by the member and to manage all commercial and personal financial dealings openly and in accordance with accepted business practices.

The RICS "model" for a professional code of conduct in the geographic information field is an important one in so far as RICS claims 110,000 members in 120 countries, offers 300 degree level courses via its very active global education and training programme, represents 50 national associations or societies and has a 135 year history. RICS, while based in the UK, is truly a global institution and its lead and actions in regard to ethical professional conduct are far reaching.

URISA - Urban and Regional Information Systems Association (USA)

The URISA ethical policy structures itself around four types of ethics:

- View persons who exemplify morality as your own guide (Virtue Ethics)
- Attempt to maximize the happiness of everyone affected (Utilitarianism)
- Only follow maxims of conduct that everyone else could adopt (Kantianism)
- Always treat other persons as ends, never merely as means (Deontology)
  (URISA, 2003)

The URISA GIS Code of Ethics was approved by the URISA Board of Directors in April, 2003. (http://www.urisa.org/ethics/code_of_ethics.htm) The Code of Ethics (see full text in Annex B) is intended to provide guidelines for GIS (geographic information system) professionals. It should help professionals make appropriate and ethical choices. It should provide a basis for evaluating their work from an ethical point of view. By heeding this code, GIS professionals will help to preserve and enhance public trust in the discipline.

This code is based on the ethical principle of always treating others with respect and never merely as means to an end: i.e., *deontology*. It requires us to consider the impact of our actions on other persons and to modify our actions to reflect the respect and concern we have for them. It emphasizes the obligations of GIS professionals to other persons, to colleagues, to the profession, to employers, and to society as a whole. Those obligations provide the organizing structure for the guidelines.

In relation to society, the guidelines require that GIS professionals "do the best work possible" by being objective, using due care, practising integrity, being aware of

consequences of their work and actions, contributing to the community as much as possible and speaking out about public issues. Obligations to employers (or those otherwise funding the work of the professional) cover delivering highest quality work at all times, not taking on work for which you are unqualified, keeping current in the profession, several issues on maintaining a professional relationship with clients and being honest. Obligations to colleagues and the profession generally include respecting the work of others, honouring intellectual property rights and contributing to the discipline as much as possible. Finally, obligations to individuals in society focus on respecting privacy, especially personal privacy, where GIS technology offers avenues for abuse, and respecting individual rights.

As a general code of conduct for the GIS profession, however defined, the URISA code does not include text relating to breach of the code, disciplinary action, or sanctions. The code takes a positive tone, exhorting GIS professionals to commit themselves to ethical behaviour throughout their careers, rather than merely avoiding specific acts that might be ethically wrong. The code also recognises that one size does not fit all circumstances. Yet the basic guiding ethical principles can and should be applied to the GIS profession as and where appropriate. For example, many of the general "obligations" are covered by clauses in the RGS-IBG code of conduct, even though this has no formal sanction procedures, as well as appearing in the Code of Conduct of the RICS Bye-Laws, which do have stringent procedures for breaches of the RICS code.

There is debate taking place right now as to which approach works best and/or is needed in different circumstances, including in different legal environments. For example, legal enforcement of sanctions against a member, such as those of RICS in the UK, are rarely found in similar professional societies in the USA for reasons relating to employment law, among other issues.

ACM - Association for Computing Machinery (USA)

The current ACM Code of Ethics and Professional Conduct was adopted in 1992 and consists of 24 "imperatives formulated as statements of personal responsibility" covering many "but not all" issues that computing professionals are likely to face in their careers. The code is extensive, running to more than six pages of text (see Annex J and is included in this document since GIS professionals bridge the computing and geography professions. As opposed to the codes of, for example, the RGS-IBG or even the RICS code of conduct bye-laws, the ACM code may seem overly long and too detailed, especially considering that membership in the ACM is seldom a legal requirement for practising in the IT profession in America or anywhere else.

The only section dealing with compliance to the code states that computing professionals should "adhere to the principles expressed in this Code (and) encourage and support adherence by other members". Such adherence is "largely a voluntary matter" but members engaging in gross misconduct may have their ACM membership terminated. Specific details on how that termination process would be enacted are not listed in the code and thus this threat could be exceptionally difficult to enforce in many legal jurisdictions. However, there are still many good and relevant issues relating to professional conduct in an information-based industry to be found in the ACM code and perhaps incorporated into relevant GIS professionals' codes of conduct.

BCS - British Computer Society (UK)

The British Computer Society is the UK equivalent of the American ACM described above and, similar to the ACM, the BCS has an extensive Code of Conduct. The code includes a Code of Practice and specific bye-laws governing professional conduct in regard to continuing membership of the society or removal from membership for proven misconduct. BCS is a UK chartered society, having received its Royal Charter in 1984. Membership is gained by examination and recommendation of current members. In the UK, membership of a "chartered society" confers a more formal professional status on individuals than for societies for which membership may be based only on payment of annual subscription fees. Membership of BCS also carries professional responsibilities, not least of which is adherence to the code of conduct, which was adopted in 1999.

The code of conduct (see Annex K) covers responsibilities relating to public interest, duty to relevant authorities, duty to the profession and professional competence and integrity. The introduction to the code acknowledges that the computing profession is now so diverse that members are encouraged "to produce additional Codes which are applicable and relevant to specific sectors of the profession". Thus, developing a code specific to geographic information systems (GIS) is a real possibility within the BCS framework. Such codes must be agreed by the Qualifications and Standards Board and approved by the BCS Council to come into effect.

The "General Code of Practice" sets out principles "to ensure that Information Systems (IS) Practitioners maintain recognised standards of competence in all aspects of IS practice." The code applies to all Professional Members of BCS "and to such specialist communities of Practitioners who choose to adopt a sector-specific Code." The latter would apply to any such code adopted for the GIS professional. Among the responsibilities listed in the Code of Practice is the advice to "adhere to the Code of Conduct".

BCS Bye-Laws 17, 18 and 19 cover professional conduct, including provisions for dealing with alleged misconduct, conditions for continuing and terminating membership, including regulations covering resolutions for terminating membership and the member's right to defend against allegations.

CILIP - Chartered Institute for Library and Information Professionals (UK)

The final chartered society to be reviewed is the UK's Chartered Institute for Library and Information Professionals (CILIP), formed in 2003 from the union of two previously chartered UK institutes, the Library Association and the Institute for Information Scientists, both of which have histories stretching back more than two decades. CILIP adopted its "Ethical Principles and Code of Professional Practice for Library and Information Professionals" as recently as May, 2004, making it the most recent such code of conduct reviewed in this paper (see the code text in Annex L). CILIP covers "information professionals" as opposed to the IT professionals who would typically apply for membership to either the ACM in the USA or BCS in the UK. In that sense, CILIP's aims as a chartered professional institute are equally applicable to the GIS professional as perhaps are those of RICS or RGS-IBG, especially as the "GIS" in "GIS Professional" takes on new meaning as "Geographic Information Science" as opposed to the more technical and historic meaning "Geographic Information Systems".

The Royal Charter for CILIP stresses its responsibility for "the public good" which is explicitly stated in the ethical principles and code of professional practice. As with ACM and

BCS, the code recognizes that "not every statement in the Code of Professional Practice will be equally applicable to every member of CILIP". CILIP has established an Ethics Panel of "experienced members of the profession" whose role is to help members "resolve ethical issues". Significant breaches of the principles or code of practice will be referred to the CILIP Disciplinary Committee, but specific sanctions are not mentioned in the text of the code. Examples of best practice are being collected and will be widely published to the membership.

The ethical principles include concern for the public good "in all professional matters", for the reputation of the information profession, commitment to access to information, providing the best service possible with the resources available, treating all information users equally, acting impartially, respecting privacy and confidentiality, respecting skills of others while maintaining and improving personal professional knowledge. CILIP has created a professional development programme and by 2005 or 2006 expects to have in place a professional "re-qualification" programme under which current chartered members would be required to produce evidence (to a prescribed standard) of how they are maintaining or increasing their professional competence.

The code of professional practice covers personal responsibilities, responsibilities to information and its users, to colleagues and the information community, to society and to employees. Breaches of the code are to be reported to appropriate authorities, where further investigation and action will be taken.

Analysis of Commonalties across Codes of Ethics

Having been briefly introduced to the codes of ethics and professional conduct of some of the organisations operating in the geospatial arena, we now propose a matrix by which commonalities can be identified across all such codes. This should help guide us in creating a suitable code of ethics for GI/GIS associations, such as the AGI among other types of organisations, and not restricted to just the AGI or even to a Western European / developed nation setting. There are some basic ethical concepts that exist across all societies, if one accepts the modern definition of 'ethics' as presented earlier in this paper (based on logic). However, some ethical 'norms' can and do vary across national boundaries and societies, even if this is not (typically) openly discussed or acknowledged. There is little point in hiding one's head in the sand by promulgating principles for ethical behaviour that will almost certainly not be obeyed in a specific societal or discipline setting.

We offer the matrix shown in Table 1 as an exercise for workshop participants to complete, based on the introductory concepts in this paper and the detailed contents of the organisations' codes of ethics or professional conduct contained in the Annexes to this paper. As an example, the rows relating to complying with codes of conduct or professional practice have been completed already. Perhaps participants would like to check the accuracy of these entries. Feel free to add additional rows if new issues are identified during this exercise.

As an alternative exercise, perhaps for small group work, it would be interesting to assign not simple "Yes/No" values to the columns, but rather implement a "grading" scheme of from, say, "1 to 5" (less important to more important) or even "W/A/S" (weak/average/strong) regarding the extent to which the ethical issue is adhered to in the institution's code of conduct or professional practice. For example, some codes simply state that breaches of the code can result in loss of membership, others spend pages on a range of ramifications.

Table 1 - Commonalities across various codes of ethics in the GI/GIS, computing and information communities.

Ethics/Professional Conduct Code Attribute	URISA (USA)	RICS (UK)	RGS (UK)	ASPRS (USA)	AICP (USA)	FIG (Intl)	PSLS (USA)	IES (USA)		BCS (UK)	ACM (USA)	CILIP (UK)
General moral code issues:												
Contribute to society and human well-being.												
Avoid harm to others (health, safety, welfare, etc.)												
Be honest and trustworthy, maintain high personal integrity												
Be fair and take action **not** to discriminate												
Honour property rights including all IPR												
Respect privacy of others												
Honour confidentiality of information												
Be actively aware of consequences of your actions												
Speak out about public issues within your competency area												
Professional code issues:												
Maintain and update professional competence												
Do not misrepresent professional qualifications or expertise												
Respect the work of colleagues and other professionals												
Uphold the reputation of the profession in your own conduct												
The code recognises that "a one size code does not fit all"												
Treat all information with respect, e.g. accuracy, quality, etc.												
Maintain objectivity, independence and openness at all times												
Be aware of environmental issues and concerns												
Complying with the code(s):												
Infringement of the code is "to be avoided"	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
Infringement of code can result in termination of membership		Y								Y	Y	Y
Infringement of code can result in financial penalties		Y								Y		
Infringement of code can result in termination of accreditation		Y								Y		

Conclusion: The Ten Commandments of GIS Ethics?

The Computer Ethics Institute of the Brookings Institution developed and promulgated "The Ten Commandments of Computer Ethics" (CEI, 2001) below:

The Ten Commandments of Computer Ethics

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's computer files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not copy or use proprietary software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization or proper compensation.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt think about the social consequences of the program you are writing or the system you are designing.
10. Thou shalt always use a computer in ways that insure consideration and respect for your fellow humans.

We propose that a similar "Ten Commandments of GIS Ethics" could be worded, as follows, with slightly updated wording compared to the biblical context used in the original version above:

The Ten Commandments of GIS Ethics

1. You will not use a GIS technology to harm other people.
2. You will not interfere with other people's computer work.
3. You will not snoop around in other people's computer files, nor misuse distributed access to geospatial databases or location-based technology in such a way as to infringe of the rights of your fellow humans.
4. You not use a computer to steal or use geospatial data or information or GIS applications to aid in theft, whether directly or indirectly.
5. You will not use a geospatial database or GIS technology to bear false witness.
6. You will not copy or use proprietary GIS, visualisation, GI database management or remote sensing analysis software for which you have not paid.
7. You will not use other people's computer resources or geospatial databases without authorization or proper compensation, unless such resources are openly advertised as being freely available and in the public domain.
8. You will not appropriate other people's intellectual output.
9. You **will** think about the social consequences of the GIS or other spatial analysis programme(s) you are writing or the GI application system you are designing, including its potential for misuse or abuse by those less principled than yourself.
10. You will always use a computer, information network and spatial applications in ways that insure consideration and respect for your fellow humans.

We leave it as an exercise for the global GIS community to improve upon these "commandments" - and then to disseminate them as widely as possible - and to live by them.

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Annex A - UK Information Fair Trader Scheme

(a) UK Hyrodographic Office
[UKHO, 2003 #16203]
I am personally committed to making sure that we trade in information fairly. To show the strength of my commitment, I have received Fair Trader accreditation from the Controller of Her Majesty's Stationery Office (HMSO). I am making all the administrative changes necessary to make sure that I can support the following statement with confidence.

I will insist that we strictly follow a system of open trading that meets the terms of the Competition Act 1998. My aim is that, in principle, we can meet the needs of anyone who applies for a licence to reuse information for any purpose. We will publish any exceptions on our website (www.ukho.gov.uk) and will strictly follow them.

The role of information trading is written into our business model. We set prices, and methods for setting prices (such as royalty schemes), in line with the role of information trading within my business model. We publish them on the website and strictly follow them. Any exceptions are described in full on the website, and are available to anyone who qualifies for them.

I am committed to reducing as far as possible the administrative burden on people who reuse public-sector information. I will make sure that we use processes for trading information that are similar to those of the rest of the public sector.

I will tell the Controller of HMSO about any complaints I receive that my organisation has broken this commitment, and I will investigate them thoroughly. If HMSO decide to investigate a complaint, I will allow the HMSO investigation team to see the relevant staff and records.

Dr D Wynford Williams
Chief Executive and National Hydrographer
UK Hydrographic Office
10 February 2003

Last revised: 10 October 2003

(b) The TSO First Review
[HMSO, 2003 #14648]

To take stock of the first four verifications carried out to date under the IFTS (ie HMSO, UKHO, OS, Met Office).

ASPECTS NEEDING FURTHER CONSIDERATION

DEPTH AND THOROUGHNESS

Trading Funds

16.   Generally, those undergoing verification felt the team looked at the right areas and spoke to the right people. At least one Trading Fund recognised that they needed to be pro-active to ensure that the verification team engaged with all the relevant people in the appropriate areas, ie strategists, policy makers, decision takers and front-line delivery staff. Some, however, felt that the verification team concentrated too much, at times, on cost and allocation models. Indeed, some of those interviewed in two Trading Funds felt the verification team were occasionally going outside their remit. One Trading Fund thought discussion of cost and revenue allocations with Directors should have been sufficient.

Verification Team

17.   The verification team found in some instances that those being interviewed felt that the onus was on the team to unearth the information: they would not volunteer information but only provide it if and when specifically asked.

18.   The verification team also experienced, on some occasions, a lack of understanding in Trading Funds regarding the depth that the team would need to delve in order to substantiate the Chief Executive's commitment. There is a trade-off between the depth of relevant information provided before the on-site visit and the amount of time spent on site.

Annex B - The URISA Code of Ethics

[URISA, 2003 #16222]

GIS Code of Ethics [1]
Approved by the **URISA Board of Directors**, 2 April 2003
(http://www.urisa.org/ethics/code_of_ethics.htm)
and as used by the **GIS Certification Institute**, 2004
(http://www.gisci.org/Application_Materials/CODE_OF_ETHICS.pdf)

This Code of Ethics is intended to provide guidelines for GIS (geographic information system) professionals. It should help professionals make appropriate and ethical choices. It should provide a basis for evaluating their work from an ethical point of view. By heeding this code, GIS professionals will help to preserve and enhance public trust in the discipline.

This code is based on the ethical principle of always treating others with respect and never merely as means to an end: i.e., *deontolog*y. It requires us to consider the impact of our actions on other persons and to modify our actions to reflect the respect and concern we have for them. It emphasizes our obligations to other persons, to our colleagues and the profession, to our employers, and to society as a whole. Those obligations provide the organizing structure for these guidelines.

The text of this code draws on the work of many professional societies. It is not surprising that many codes of ethics have a similar structure and provide similar guidelines to their professionals, because they are based upon a similar concept of morality. A few of the guidelines that are unique to the GIS profession include the encouragement to make data and findings widely available, to document data and products, to be actively involved in data retention and security, to show respect for copyright and other intellectual property rights, and to display concern for the sensitive data about individuals discovered through geospatial or database manipulations. Longer statements expand on or provide examples for the GIS profession.

A positive tone is taken throughout the text of this code. GIS professionals commit themselves to ethical behavior rather than merely seeking to avoid specific acts. The problems with listing acts to be avoided are: 1) there are usually reasonable exceptions to any avoidance rule and 2) there is implicit approval of any act not on the list. Instead, this code provides a list of many positive actions. These explicit actions illustrate respect for others and help strengthen both an understanding of this ethos and a commitment to it.

This code is not expected to provide guidelines for all situations. Ambiguities will occur and personal judgment will be required. Sometimes a GIS professional becomes stuck in a dilemma where two right actions are in conflict with each other or any course of action violates some aspect of this code. Help might come from talking with colleagues or reading relevant works such as those listed in the bibliography. Ultimately, a professional must reflect carefully on such situations before making the tough decision. Contemplating the values and goals of alternative ethical paradigms may be useful in reaching a decision:[2]

- View persons who exemplify morality as your own guide (Virtue Ethics)
- Attempt to maximize the happiness of everyone affected (Utilitarianism)
- Only follow maxims of conduct that everyone else could adopt (Kantianism)
- Always treat other persons as ends, never merely as means (Deontology)

I. Obligations to Society

The GIS professional recognizes the impact of his or her work on society as a whole, on subgroups of society including geographic or demographic minorities, on future generations, and inclusive of social, economic, environmental, or technical fields of endeavor. Obligations to society shall be paramount when there is conflict with other obligations. Therefore, the GIS professional will:

1. Do the Best Work Possible
   - Be objective, use due care, and make full use of education and skills.
   - Practice integrity and not be unduly swayed by the demands of others.
   - Provide full, clear, and accurate information.
   - Be aware of consequences, good and bad.
   - Strive to do what is right, not just what is legal.

2. Contribute to the Community to the Extent Possible, Feasible, and Advisable
   - Make data and findings widely available.
   - Strive for broad citizen involvement in problem definition, data identification, analysis, and decision-making.
   - Donate services to the community.

3. Speak Out About Issues
   - Call attention to emerging public issues and identify appropriate responses based on personal expertise.
   - Call attention to the unprofessional work of others. First take concerns to those persons; if satisfaction is not gained and the problems warrant, then additional people and organizations should be notified.
   - Admit when a mistake has been made and make corrections where possible.

II. Obligations to Employers and Funders

The GIS professional recognizes that he or she has been hired to deliver needed products and services. The employer (or funder) expects quality work and professional conduct. Therefore the GIS professional will:

1. Deliver Quality Work
   - Be qualified for the tasks accepted.
   - Keep current in the field through readings and professional development.
   - Identify risks and the potential means to reduce them.
   - Define alternative strategies to reach employer/funder goals, if possible, and the implications of each.
   - Document work so that others can use it. This includes metadata and program documentation.

2. Have a Professional Relationship
   - Hold information confidential unless authorized to release it.
   - Avoid all conflicts of interest with clients and employers if possible, but when they are unavoidable, disclose that conflict.
   - Avoid soliciting, accepting, or offering any gratuity or inappropriate benefit connected to a potential or existing business or working relationship.
   - Accept work reviews as a means to improve performance.
   - Honor contracts and assigned responsibilities.
   - Accept decisions of employers and clients, unless they are illegal or unethical.
   - Help develop security, backup, retention, recovery, and disposal rules.
   - Acknowledge and accept rules about the personal use of employer resources. This includes computers, data, telecommunication equipment, and other resources.
   - Strive to resolve differences.

3. Be Honest in Representations
   - State professional qualifications truthfully.
   - Make honest proposals that allow the work to be completed for the resources requested.
   - Deliver an hour's work for an hour's pay.

- Describe products and services fully.
- Be forthcoming about any limitations of data, software, assumptions, models, methods, and analysis.

III. Obligations to Colleagues and the Profession

The GIS professional recognizes the value of being part of a community of other professionals. Together, we support each other and add to the stature of the field. Therefore, the GIS professional will:

1. Respect the Work of Others.
- Cite the work of others whenever possible and appropriate.
- Honor the intellectual property rights of others. This includes their rights in software and data.
- Accept and provide fair critical comments on professional work.
- Recognize the limitations of one's own knowledge and skills and recognize and use the skills of other professionals as needed. This includes both those in other disciplines and GIS professionals with deeper skills in critical sub-areas of the field.
- Work respectfully and capably with others in GIS and other disciplines.
- Respect existing working relationships between others, including employer/employee and contractor/client relationships.
- Deal honestly and fairly with prospective employees, contractors, and vendors.

2. Contribute to the Discipline to the Extent Possible
- Publish results so others can learn about them.
- Volunteer time to professional educational and organizational efforts: local, national, or global.
- Support individual colleagues in their professional development. Special attention should be given to underrepresented groups whose diverse backgrounds will add to the strength of the profession.

IV. Obligations to Individuals in Society

The GIS professional recognizes the impact of his or her work on individual people and will strive to avoid harm to them. Therefore, the GIS professional will:

1. Respect Privacy
- Protect individual privacy, especially about sensitive information.
- Be especially careful with new information discovered about an individual through GIS-based manipulations (such as geocoding) or the combination of two or more databases.

2. Respect Individuals
- Encourage individual autonomy. For example, allow individuals to withhold consent from being added to a database, correct information about themselves in a database, and remove themselves from a database.
- Avoid undue intrusions into the lives of individuals.
- Be truthful when disclosing information about an individual.
- Treat all individuals equally, without regard to race, gender, or other personal characteristic not related to the task at hand.

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Notes:

[1] URISA's Ethics Task Force consisted of William J. Craig, chair, Al Butler, Tim Case, and Rebecca Somers. Craig authored the first draft with significant input from James H. Fetzer and Harlan Onsrud. Somers and Judy M. Olson provided comments in numerous significant areas on subsequent revisions. This document is the result of extensive public review. Dozens of people provided useful feedback and suggestions during two periods of open public comment in 2002. All comments were reviewed and considered carefully. Changes were made to the code where appropriate within the basic deontological framework.

[2] This approach is recommended by Kidder (1995). For a thorough discussion of moral theories, see Rachels (1999).

Annex C - The Royal Institution of Chartered Surveyors (RICS) Code of Conduct

RICS Bye-Laws, 1973 - SECTION V - Conduct - Rules of Conduct

19   (1) Every Member shall conduct himself in a manner befitting membership of the Institution.

(2) Every Member shall comply with the Regulations which may be laid down to govern the manner in which Members carry on their profession or business.

(3) Every Member shall comply with the requirements of the Regulations as to the avoidance (so far as possible) of conflicts of interest and the management of such conflicts of interest as may arise.

(4) Every Member shall, in accordance with the Regulations, furnish to the Institution such particulars of his practice, employment and business as it may reasonably require for the administration of the Institution and for the regulation of Members' professional conduct and discipline.

(5) In the interests of maintaining the highest professional standards every Member shall comply with all relevant practice statements approved and published by or on behalf of the Governing Council or a National Association.

(6) Every Member shall, in accordance with the Regulations, be insured against claims for breach of professional duty as a surveyor.

(7) Subject to the Regulations every Member shall:

(a) keep in one or more bank accounts separate from his own, his firm's or his company's bank account (as the case may be) any money held by or entrusted to him, his firm or his company in any capacity other than that of beneficial owner;

(b) account at the due time for all moneys received and paid on behalf of any person who is entitled to such an account, whether or not any payment is due to that person; and

(c) keep such accounting records as are specified in the Regulations and maintain them in accordance with the Regulations.

(8) Subject to the Regulations, every Member shall:

(a) undertake such lifelong learning as is specified in the Regulations; and

(b) provide the Institution with such evidence and/or certification as the Regulations specify that he has done so, in such form as the Institution may require.

(9) Every Member:

(a) shall promptly discharge his business and personal debts fully as and when they fall due;

(b) shall (without restriction on the generality of the immediately preceding sub-paragraph) so conduct his business and personal financial affairs so as to ensure that he is not adjudicated bankrupt or have proceedings which are analogous to bankruptcy instituted against him anywhere in the world, and/or does not enter into an arrangement or composition with or for the benefit of his creditors; and

(c) where he is director of a company or is a member of a limited liability partnership, in either case which offers surveying services to the public, shall ensure that such company or partnership promptly discharges its debts as and when they fall due and is not subject to the appointment of an office-holder for the purpose of insolvency proceedings under the Insolvency Act 1986 or any analogous provisions in any jurisdiction.

(10) Every Member shall disclose to the Institution promptly the name of any other Member, or firm or company in practice as surveyors which includes as a principal, partner or director a Member, who or which in his reasonable belief may be in breach of Bye-Law 19(6) and/or Bye-Law 19(7) and/or any Regulation made thereunder.

(11) Every Member shall disclose in writing to the Institution promptly that either he or to the best of his information, knowledge and belief any other Member has been charged with or been convicted or a criminal offence involving embezzlement, theft, corruption, fraud or dishonesty of any kind or any other criminal offence carrying on first conviction the possibility of a custodial sentence.

(12) A Member shall not, in the course of his professional business, discriminate against any person on grounds of race, colour, culture, nationality, ethnic or national origins, religion, gender, marital status, sexual orientation, or disability.

Responsibility of Members for their Firms

20 (1) Every Member who:

(i) is or holds himself out or allows himself to be a sole principal, partner or director of a firm or company carrying on the practice as surveyors; or

(ii) (whether or not expressly described as a consultant) allows his name and/or designatory letters or designation to appear on business stationery or in business communications or material of any nature of a firm, or company carrying on practice as surveyors in which no partner, director is a Member; or

(iii) is a sole principal, partner or director of a firm or company which is so connected with another firm, or company carrying on practice as surveyors in which no partner is a Member, that in the opinion of the Governing Council persons dealing with that other firm or company believe or may be induced to believe that the two firms or companies are connected; or

(iv) is a person who has responsibility within any firm, company or organisation for the manner in which surveying services are undertaken shall be responsible for any contravention of the Bye-Laws or the Regulations committed by any partner, or director or by any member of staff of such firm, company or organisation for whom he has responsibility, provided that if such Member shall show that, without any fault on his part, he had no reason to be aware and was not, in fact, aware of any such contravention and that he had prior to such contravention taken such steps as were reasonable to ensure that such contravention would not be committed he may be relieved, in whole or part, of responsibility for such contravention.

(2) For the purposes of this Bye-Law, "contravention" shall include any act or omission which would, if committed by a Member, constitute a contravention.

(3) Where more than one Member is the subject of paragraph (1) of the Bye-Law at the relevant time and in respect of the same contravention, the Institution is entitled to take action under Bye-Laws 21 and 22 in respect of any one or more of those Members notwithstanding that it

may decide in its absolute discretion not to take action against any other Member or Members who may also be subject to paragraph (1) as aforesaid in respect of the same contravention.

Powers

21 (1) If, after enquiry in accordance with the provisions of Bye-Law 22 and Regulations made under it:

(a) a Member is found to have contravened any of the Rules of Conduct or other provisions of these Bye-Laws or the Regulations; or

(b) there is produced to the Institution a certificate of conviction of a Member by a court of competent jurisdiction for any criminal offence involving embezzlement, theft, corruption, fraud or dishonesty of any kind or any other offence carrying on first conviction the possibility of a custodial sentence the Institution shall have power to take any one or more of the courses of action specified in paragraph (2) of this Bye-Law.

(2) The courses of action referred to in the preceding paragraphs are:

(a) to caution the Member against repeating the conduct or action which is found to have constituted the contravention;

(b) to reprimand or severely reprimand the Member;

(c) to require the Member to give one or more of the following undertakings:

(i) to refrain from continuing or repeating the conduct or action which is found to have constituted the contravention;

(ii) to take such action as the Institution considers appropriate to rectify the conduct or action which is found to have constituted the contravention on such terms and conditions including time limits as the Institution shall determine;

(iii) to refrain from practising surveying of a description(s) specified in the undertaking or to refrain from so practising except in accordance with such conditions as may be specified in the undertaking for such period as the Institution shall determine;

(iv) where any of the sub-paragraphs (i)-(iv) in Bye-Law 20 applies, to use his best endeavours to ensure that the firm, company or organisation refrains from the conduct or action, acts, and/or refrains from practising, as specified by the Institution, in accordance with the principles set out in the preceding sub-paragraphs (i)-(iii) respectively;

(d) to fine the Member up to a maximum figure specified in the Regulations;

(e) to order that the Member's continued membership of the Institution shall be conditional on his compliance, for such period as may be specified in the order, with such requirements as shall be so specified;

(f) to suspend the Member from the membership of the Institution for such period as the Institution shall determine;

(g) to expel the Member from the Institution;

(h) to make such order as it considers just and reasonable for a payment by the Member to the Institution in relation to its costs in connection with the investigation and hearing(s), and/or in relation to the costs of monitoring compliance with undertakings required under sub-paragraph (c) of this paragraph;

(i) to order publication of its findings under paragraph (1)(a) and/or (b) of this Bye-Law and the courses of action taken under this paragraph.

(3) The powers referred to in Bye-Law 21(2)(a), (b), (c)(i) and (ii), (c)(iv) as it applies to (c)(i) and (ii), (d) and (h) may be exercised on behalf of the Institution by the Chief Executive in such circumstances and to such extent as the Governing Council may authorise in Regulations, provided always that every Member in respect of whom the Chief Executive exercises such power has a right not to accept, in accordance with Regulations, all or any part of the course of action determined by the Chief Executive in which circumstance the matter shall be referred for consideration by a Panel or Board in accordance with the provisions of Bye-Law 22 and Regulations made under it.

(4) Notwithstanding the generality of paragraph (2) of this Bye-Law, where a Member is found to be in breach of Bye-Law 19(9)(b) or (c) the Institution shall expel the Member unless it is satisfied either such breach was not the result of any fault on the part of the Member or that it would be unreasonable to expel him, and, where the Institution is so satisfied, it may instead of expelling the Member take one or more of the other courses of action referred to in paragraph (2) of this Bye-Law.

(5) The Institution may, if it thinks fit, temporarily suspend a Member or require the Member to refrain from practising surveying of one or more specific descriptions and/or to use his best endeavours to ensure that a firm, company or organisation to which Bye-Law 20 applies so refrains, pending enquiry under paragraph (1) and the outcome of consideration of action under paragraph (2) and/or (3); and the Institution may publish its action under this paragraph and/or cause such action to be published with or without also providing reasons for its action.

(6) The Institution may, as it considers just and reasonable, decide to make a payment to any Member in relation to his costs incurred in connection with an investigation and/or hearing under Bye-Laws 19 to 22B (inclusive).

(7) If a Member who is also a member of the Society of Chartered Surveyors or any other kindred society with which the Institution has entered into an agreement in accordance with Article 20 of the Supplemental Charter is suspended or expelled by that kindred Society, the Institution shall have the power without further enquiry to suspend or expel (as the case may be) such Member from the Institution.

Procedure

22 (1) Subject to Bye-Law 21(3), the disciplinary powers of the Institution under Bye-Law 21 of this Section shall be exercised by Professional Conduct Panels, Disciplinary Boards and Appeals Boards each respectively constituted and acting as provided by Regulations.

(2) If a Member is expelled his name shall be removed from the Register and he shall thereupon cease for all purposes to be a Member of the Institution. His diplomas of membership and membership card shall be immediately returnable and he shall not be entitled to use any designation or description which implies membership or former membership of the Institution.

(3) (a) If a Member is suspended his diplomas of membership and membership card shall be immediately returnable and he shall not be entitled during the period of his suspension to

exercise any of the rights or privileges of membership of the Institution or (in particular) to use any such designation or description as aforesaid. He shall however remain in all other respects subject to the provisions of these Bye-Laws and to the exercise of the Institution's disciplinary powers in respect of any contravention of those provisions committed by him during the period of his suspension.

(b) If a Member is suspended he shall forthwith notify his existing clients or employers for whom he provides surveying services of the fact of his suspension and confirm the fact of such suspension in writing at the first available opportunity.

(4) Once a Member has been notified that a complaint or allegation has been made against him or that a conviction, bankruptcy or other matter mentioned in paragraph 1(b) of Bye-Law 21 of this Section has been notified to the Institution he shall not be entitled to resign from membership of the Institution until all proceedings against him under this Bye-Law have been concluded; and any such proceedings may be continued notwithstanding his attempted resignation.

Referral of Cases to Appeal Board

22A (1) If it appears to the Chief Executive that the course of action taken in respect of a Member by a Disciplinary Board has been unduly lenient, he may refer the case to an Appeal Board for it to review the action taken.

(2) Where a case has been referred to an Appeal Board under the preceding paragraph, the Board may:

(a) uphold the course of action taken by the Disciplinary Board; or

(b) cancel the course of action taken by the Disciplinary Board in whole or in part; and in place of such action take such other course of action as it thinks appropriate for the case and as the Disciplinary Board had power to take when dealing with it.

(3) An Appeal Board reviewing action taken by a Disciplinary Board shall act as provided by Regulations.

Members' Failures

22B (1) If any Member fails to deliver to the Institution any certificate, report or other document required by any of the Bye-Laws in Section V of these Bye-Laws or by the Regulations relating thereto, and requested by the Institution, within twenty-eight days from the date upon which it is required to be delivered, the Chief Executive may by notice in writing demand that a fine or fines up to a maximum figure(s) specified in the Regulations be paid within the period specified in the notice (which shall not be less than twenty-eight days from the notice).

(2) If the Member either:

(a) fails without reasonable excuse to furnish the material required within the period specified in the notice; or

(b) asks the Chief Executive within the period of twenty eight days from the notice to refer the matter to a Disciplinary Board the Chief Executive shall refer the matter to a Disciplinary Board.

Annex D - Royal Geographical Society (with the Institute of British Geographers)

Code of Conduct as recommended to the Society's Council in December 2000

Professional Conduct

All chartered fellows shall act in a manner worthy of the honour and interests of the profession of geographer and the Society and shall do nothing that may bring the profession of geographer or the Society into disrepute. They shall at all times safeguard the public interest and shall exercise their professional skill and judgement to the best of their ability and shall discharge their professional responsibilities with integrity. In order to ensure compliance with this bylaw, the Council shall from time to time publish Rules of Conduct to which those fellows holding the status of chartered geographers shall conform.

Rules of Conduct

a. Fellows shall at all times conduct themselves in such a way as to uphold the reputation and good standing of the profession of geographer and the Society.

b. Fellows shall, to the best of their ability, ensure that their professional activities do not unnecessarily put at risk the health, safety or welfare of any person.

c. Fellows shall have due regard to the need to protect the environment, human rights, and to ensure efficient use of natural resources.

d. Fellows shall not maliciously injure, or attempt to injure, directly or indirectly, the reputation, prospects or business of others.

e. Fellows shall not purport to be experts in an area of geography, or any other professional discipline, in which they have insufficient ability, qualifications or experience.

f. Fellows shall take reasonable steps to maintain and develop their professional competence and knowledge.

g. Fellows shall comply with the Society's commitment to equal opportunities.

Investigations of allegations made against a Fellow for breach of The Code of Conduct

1.1. If there are grounds to believe that a Fellow is in breach of the Society's Code of Conduct, the evidence is to be referred to the Chair of the PSC[1].

1.2. The Chair of the PSC, or his/her appointed deputy, is to convene a Code of Conduct panel comprising at least three members of the Appeal Panel list.

1.3. If the PSC concludes that there are no grounds for action then the Director is to write to the Complainant that no further action is to be taken.

1.4. If there are grounds for believing that a breach of Code of Conduct has occurred, then the Director is to ensure that the matter is dealt with under the disciplinary procedure for breach of Code of Conduct.

Disciplinary procedure for breach of Code of Conduct

1.5 -
1. The Fellow is to be informed of possible breach of Code of Conduct by letter from the Director sent by the recorded delivery system of the UK postal service where possible.

2. The Fellow is to be given the full details of alleged breach, by the same means as in paragraph 6.5.a, within 56 days of allegation being referred to a Code of Conduct panel.

3. The Fellow is to be given reasonable time (at least 2 months) to respond to the allegation. The Fellow is to be invited to respond in writing, or if the Director considers it appropriate, by personal representation to the Code of Conduct panel.

4. The Code of Conduct panel is to consider evidence from the Fellow within 2 months of receipt of Fellow's representation or receipt of his/her intention to present evidence by personal representation.

5. The Fellow may be accompanied by legal representatives or one lay adviser.

6. The Code of Conduct panel is to advise Council of their recommendations within 14 days of conclusion of the hearing.

7. The Code of Conduct Panel is to recommend one of the following to Council:

   a. That no further action be taken
   b. That the Fellow be advised as to their future conduct
   c. That the Fellow's name be deleted from the roll of Chartered Geographers maintained by the Society and their right to use the title C.Geog be withdrawn.
   d. That the Council may consider removing the Fellow from Fellowship of the Society in accordance with Bye Law iv.4.

h. The Director is to advise the Fellow of Council's decision within 7 days of its being reached.

Notes: [1] Professional Standards Committee

Annex E - International Federation of Surveyors (FIG)

FIG - Ethical Principles and Model Code of Professional Conduct

Background.

1. The surveying profession is recognised globally as one that adheres to fundamental ethical principles.

2. The **International Federation of Surveyors (FIG)** recognises that, due to international differences of culture, language, and legal and social systems, the task of preparing a detailed code of professional conduct must rest with each member association, which also has the responsibility to implement and enforce such a code.

3. FIG also recognises that, given the global mobility of surveyors, it is important to establish common ethical principles and codes of professional conduct. As part of its role in providing guidance and encouraging the harmonisation of standards, FIG offers this model code.

4. A professional is distinguished by certain characteristics including:

    *   mastery of a particular intellectual skill, acquired by education and training;
    *   acceptance of duties to society in addition to duties to clients and employers;
    *   an outlook that is essentially objective; and
    *   the rendering of personal service to a high standard of conduct and performance.

5. Professional surveyors recognise that their ethical responsibilities extend to the public, to their clients and employers, to their peers and to their employees. Accordingly they acknowledge the need for integrity, independence, care and competence, and a sense of duty. They uphold and advance these values by:

    *   supporting and participating in the continuing development of the surveying profession;
    *   serving with honesty and forthrightness and within areas of their competence; and
    *   using their expertise for the enhancement of society and the stewardship of resources.

6. FIG recommends that surveyors and associations of surveyors adopt the following ethical principles and model codes of professional conduct or, where appropriate, adapt them to local values and customs.

Ethical Principles.

Integrity

Surveyors:
*   maintain the highest standards of honesty and integrity towards those with whom they come into contact, either directly or indirectly; and
*   accurately and conscientiously measure, record and interpret all data and offer impartial advice based thereon.

Independence

Surveyors:
*   diligently and faithfully execute their role according to the law; and
*   maintain their objectivity and give their clients and employers unbiased advice, without prejudice or favour either towards or against other organisations or persons.

Care and Competence

Surveyors:
- maintain their knowledge and skills, keep abreast of developments in their fields of practice and apply their expertise for the benefit of society;
- only take on work that they reasonably believe they will be able to carry out in a professional manner; and
- exercise care in the performance of their duties.

Duty

Surveyors:
- maintain confidentiality about the affairs of their current and former clients and employers unless required by law to make disclosures;
- avoid conflicts of interest;
- take environmental concerns into account in their operations and activities;
- recognise the interests of the public when providing services to their clients or employers; and
- conduct their work to the best of their ability, giving due consideration to the rights of all parties.

The Public Interest.

1.	The first duty of surveyors is normally to their clients or employers but as professionals they also have a duty to the public. Surveyors are fact finders and providers of opinions and advice. It is important that they are diligent, competent, impartial and of unquestionable integrity in ensuring that the information they provide is true and complete and that the opinions and advice that they give are of the highest quality.

2.	The work of surveyors has cumulative and long term effects on future generations. Many of the functions of surveyors, even those performed for private clients, are by their nature functions that have a lasting impact on society. Most information becomes public information at some point in time and may be used for purposes other than those for which it was initially intended. The information recorded by early surveyors and explorers has, for example, subsequently been used for the expansion of geographical knowledge and for land development. Similarly, land management systems designed for today create an environment in which future generations will live, work and play. The principles of sustainable development require surveyors to work as much for the future as for the present.

3.	Clients, employers and the public must be confident that surveyors have exercised objectivity in arriving at their professional opinions. These obligations may sometimes appear to be in conflict with the obligations that surveyors owe to their clients, their employers and their peers. Surveyors have a duty to the truth, even when it may not be in the best interest of their clients or employers.

4.	All surveyors, whether they be private practitioners, employees in the private sector, public servants or educators, should discharge their professional duties and adhere to ethical principles in accordance with the following model code of professional conduct.

Model Code of Professional Conduct

FIG recommends the following code of conduct as the minimum to be expected of all professional surveyors.

1. In general, surveyors:

    - exercise unbiased independent professional judgement;
    - act competently and do not accept assignments that are outside the scope of their professional competence;
    - advance their knowledge and skills by participating in relevant programmes of continuing professional development;
    - ensure that they understand the fundamental principles involved when working in new areas of expertise, conducting thorough research and consulting with other experts as appropriate; and
    - do not accept assignments that are beyond their resources to complete in a reasonable time and in a professional manner.

2. As employers, surveyors:

    - assume responsibility for all work carried out by their non-professional staff;
    - assist their employees to achieve their optimum levels of technical or professional advancement;
    - ensure that their employees have proper working conditions and equitable remuneration; and
    - cultivate in their employees integrity and an understanding of the professional obligations of surveyors to society.

3. When dealing with clients, surveyors:

- avoid any appearance of professional impropriety;
- disclose any potential conflicts of interest, affiliations or prior involvement that could affect the quality of service to be provided;
- avoid associating with any persons or enterprises of doubtful character;
- do not receive remuneration for one project from multiple sources without the knowledge of the parties involved;
- preserve the confidences and regard as privileged all information about their clients' affairs; and
- maintain confidentiality during as well as after the completion of their service.

4. When providing professional services, surveyors:

- seek remuneration commensurate with the technical complexity, level of responsibility and liability for the services rendered;
- make no fraudulent charges for services rendered;
- provide details on the determination of remuneration at the request of their clients; and
- do not sign certificates, reports or plans unless these were prepared and completed under their personal supervision.

5. As members of a professional association, surveyors:

- do not enter into arrangements that would enable unqualified persons to practise as if they were professionally qualified;
- report any unauthorised practice to the governing body of the profession;
- refuse to advance the application for professional status of any person known to be unqualified by education, experience or character; and
- promote the surveying profession to clients and the public.

6. As business practitioners, surveyors:

- do not make false or misleading statements in advertising or other marketing media;
- do not, either directly or indirectly, act to undermine the reputation or business prospects of other surveyors;
- do not supplant other surveyors under agreement with their clients; and
- do not establish branch offices that purport to be under the direction and management of a responsible professional surveyor unless this is actually the case.

7. As resource managers, surveyors:

- approach environmental concerns with perception, diligence and integrity;
- develop and maintain a reasonable level of understanding of environmental issues and the principles of sustainable development;
- bring any matter of concern relating to the physical environment and sustainable development to the attention of their clients or employers;
- employ the expertise of others when their knowledge and ability are inadequate for addressing specific environmental issues;
- include the costs of environmental protection and remediation among the essential factors used for project evaluation;
- ensure that environmental assessment, planning and management are integrated into projects that are likely to impact on the environment; and encourage additional environmental protection when the benefits to society justify the costs.

Annex F - American Institute of Certified Planners (AICP)

AICP Code of Ethics and Professional Conduct
(Adopted October 1978 — as amended October 1991)

This Code is a guide to the ethical conduct required of members of the American Institute of Certified Planners. The Code also aims at informing the public of the principles to which professional planners are committed. Systematic discussion of the application of these principles, among planners and with the public, is itself essential behavior to bring the Code into daily use.

The Code's standards of behavior provide a basis for adjudicating any charge that a member has acted unethically. However, the Code also provides more than the minimum threshold of enforceable acceptability. It sets aspirational standards that require conscious striving to attain.

The principles of the Code derive both from the general values of society and from the planning profession's special responsibility to serve the public interest. As the basic values of society are often in competition with each other, so also do the principles of this Code sometimes compete. For example, the need to provide full public information may compete with the need to respect confidences. Plans and programs often result from a balancing among divergent interests. An ethical judgment often also requires a conscientious balancing, based on the facts and context of a particular situation and on the precepts of the entire Code. Formal procedures for filing of complaints, investigation and resolution of alleged violations and the issuance of advisory rulings are part of the Code.

The Planner's Responsibility to the Public

A. A planner's primary obligation is to serve the public interest. While the definition of the public interest is formulated through continuous debate, a planner owes allegiance to a conscientiously attained concept of the public interest, which requires these special obligations:

1) A planner must have special concern for the long range consequences of present actions.

2) A planner must pay special attention to the interrelatedness of decisions.

3) A planner must strive to provide full, clear and accurate information on planning issues to citizens and governmental decision-makers.

4) A planner must strive to give citizens the opportunity to have a meaningful impact on the development of plans and programs. Participation should be broad enough to include people who lack formal organization or influence.

5) A planner must strive to expand choice and opportunity for all persons, recognizing a special responsibility to plan for the needs of disadvantaged groups and persons, and must urge the alteration of policies, institutions and decisions which oppose such needs.

6) A planner must strive to protect the integrity of the natural environment.

7) A planner must strive for excellence of environmental design and endeavor to conserve the heritage of the built environment.

The Planner's Responsibility to Clients and Employers

B. A planner owes diligent, creative, independent and competent performance of work in pursuit of the client's or employer's interest. Such performance should be consistent with the planner's faithful service to the public interest.

1) A planner must exercise independent professional judgment on behalf of clients and employers.

2) A planner must accept the decisions of a client or employer concerning the objectives and nature of the professional services to be performed unless the course of action to be pursued involves conduct which is illegal or inconsistent with the planner's primary obligation to the public interest.

3) A planner shall not perform work if there is an actual, apparent, or reasonably foreseeable conflict of interest, direct or indirect, or an appearance of impropriety, without full written disclosure concerning work for current or past clients and subsequent written consent by the current client or employer. A planner shall remove himself or herself from a project if there is any direct personal or financial gain including gains to family members. A planner shall not disclose information gained in the course of public activity for a private benefit unless the information would be offered impartially to any person.

4) A planner who has previously worked for a public planning body should not represent a private client, for one year after the planner's last date of employment with the planning body, in connection with any matter before that body that the planner may have influenced before leaving public employment.

5) A planner must not solicit prospective clients or employment through use of false or misleading claims, harassment or duress.

6) A planner must not sell or offer to sell services by stating or implying an ability to influence decisions by improper means.

7) A planner must not use the power of any office to seek or obtain a special advantage that is not in the public interest nor any special advantage that is not a matter of public knowledge.

8) A planner must not accept or continue to perform work beyond the planner's professional competence or accept work which cannot be performed with the promptness required by the prospective client or employer, or which is required by the circumstances of the assignment.

9) A planner must not reveal information gained in a professional relationship which the client or employer has requested to be held inviolate. Exceptions to this requirement of non-disclosure may be made only when (a) required by process of law, or (b) required to prevent a clear violation of law, or (c) required to prevent a substantial injury to the public. Disclosure pursuant to (b) and (c) must not be made until after the planner has verified the facts and issues involved and, when practicable, has exhausted efforts to obtain reconsiderations of the matter and has sought separate opinions on the issue from other qualified professionals employed by the client or employer.

The Planner's Responsibility to the Profession and to Colleagues

C. A planner should contribute to the development of the profession by improving knowledge and techniques, making work relevant to solutions of community problems, and increasing public understanding of planning activities. A planner should treat fairly the professional views of qualified colleagues and members of other professions.

1) A planner must protect and enhance the integrity of the profession and must be responsible in criticism of the profession.

2) A planner must accurately represent the qualifications, views and findings of colleagues.

3) A planner who reviews the work of other professionals must do so in a fair, considerate, professional and equitable manner.

4) A planner must share the results of experience and research which contribute to the body of planning knowledge.

5) A planner must examine the applicability of planning theories, methods and standards to the facts and analysis of each particular situation and must not accept the applicability of a customary solution without first establishing its appropriateness to the situation.

6) A planner must contribute time and information to the professional development of students, interns, beginning professionals and other colleagues.

7) A planner must strive to increase the opportunities for women and members of recognized minorities to become professional planners.

8) A planner shall not commit an act of sexual harassment.

The Planner's Self-Responsibility

D. A planner should strive for high standards of professional integrity, proficiency and knowledge.

1) A planner must not commit a deliberately wrongful act which reflects adversely on the planner's professional fitness.

2) A planner must respect the rights of others and, in particular, must not improperly discriminate against persons.

3) A planner must strive to continue professional education.

4) A planner must accurately represent professional qualifications, education and affiliations.

5) A planner must systematically and critically analyze ethical issues in the practice of planning.

6) A planner must strive to contribute time and effort to groups lacking in adequate planning resources and to voluntary professional activities.

[http://www.planning.org/ethics/conduct.html]

Annex G - American Society for Photogrammetry and Remote Sensing (ASPRS)

Code of Ethics of the American Society for Photogrammetry and Remote Sensing
(http://www.asprs.org/)

Honesty, justice, and courtesy form a moral philosophy which, associated with mutual interest among people, should be the principles on which ethics are founded.

Each person who is engaged in the use, development, and improvement of the mapping sciences (Photogrammetry, Remote Sensing, Geographic Information Systems, and related disciplines) should accept those principles as a set of dynamic guides for conduct and a way of life rather than merely for passive observance. It is an inherent obligation to apply oneself to one's profession with all diligence and in so doing to be guided by this **Code of Ethics.**

Accordingly, each person in the mapping sciences profession shall have full regard for achieving excellence in the practice of the profession and the essentiality of maintaining the highest standards of ethical conduct in responsibilities and work for an employer, all clients, colleagues and associates, and society at large, and shall . . .

1. Be guided in all professional activities by the highest standards and be a faithful trustee or agent in all matters for each client or employer.

2. At all times function in such a manner as will bring credit and dignity to the mapping sciences profession.

3. Not compete unfairly with anyone who is engaged in the mapping sciences profession by:
   a. Advertising in a self-laudatory manner;
   b. Monetarily exploiting one's own or another's employment position;
   c. Publicly criticizing other persons working in or having an interest in the mapping sciences;
   d. Exercising undue influence or pressure, or soliciting favors through offering monetary inducements.

4. Work to strengthen the profession of mapping sciences by:
   a. Personal effort directed toward improving personal skills and knowledge;
   b. Interchange of information and experience with other persons interested in and using a mapping science, with other professions, and with students and the public;
   c. Seeking to provide opportunities for professional development and advancement of persons working under his or her supervision;
   d. Promoting the principle of appropriate compensation for work done by person in their employ.

5. Undertake only such assignments in the use of mapping sciences for which one is qualified by education, training, and experience, and employ or advise the employment of experts and specialists when and whenever clients' or employers' interests will be best served thereby.

6. Give appropriate credit to other persons and/or firms for their professional contributions.

7. Recognize the proprietary, privacy, legal, and ethical interests and rights of others. This not only refers to the adoption of these principles in the general conduct of business and professional activities, but also as they relate specifically to the appropriate and honest application of photogrammetry, remote sensing, geographic information systems, and related spatial technologies. Subscribers to this code shall not condone, promote, advocate, or tolerate any organization's or individual's use of these technologies in a manner that knowingly contributes to:
   a. deception through data alteration;
   b. circumvention of the law;
   c. transgression of reasonable and legitimate expectation of privacy.

Annex H - Pennsylvania Society of Land Surveyors (USA)

Manual of Practice for Professional Land Surveyors - Commonwealth of Pennsylvania (USA)

Pennsylvania Society of Land Surveyors, 2040 Linglestown Road, Harrisburg, PA 17110
as adopted by the Pennsylvania Society of Land Surveyors on July 10, 1998
First Printing - September 1998

This Manual of Practice has been produced through the voluntary efforts to the PSLS Standard of Practice Committee, PSLS Chapter affiliations, PSLS membership, other surveying professionals throughout the Commonwealth. The document will be reviewed and revised, if necessary, on a regular basis in order to evolve contemporaneously with the advances in technology. Comments concerning the Manual of Practice should be forwarded to the address printed below.

1.3 Principles of Professional Conduct

The Registration Law contains the following Code of Ethics:

It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any ... professional land surveyor … :

a. To act for his client or employer in professional matters other than as a faithful agent or trustee, or to accept any remuneration other than his stated recompense for services rendered.

b. To attempt to injure falsely or maliciously, directly or indirectly, the professional reputation, prospects or business of anyone.

c. To attempt to supplant another … land surveyor … after definite steps have been taken toward his employment.

d. To compete with another … land surveyor … for employment by the use of unethical practices.

e. To review the work of another … land surveyor … for the same client, except with the knowledge of such … land surveyor … , or unless the connection of such … land surveyor … with the work has been terminated.

f. To attempt to obtain or render technical services or assistance without fair or just compensation commensurate with the services rendered: Provided, however, the donation of such services to a civic, charitable, religious or eleemosynary organization shall not be deemed a violation.

g. To advertise in self-laudatory language, or in any other manner, derogatory to the dignity of the profession.

h. To attempt to practice in any field of engineering, land surveying, or geology in which the registrant is not proficient.

i. To use or permit the use of his professional seal on work over which he was not in responsible charge.

j. To aid and abet any person in the practice of … land surveying … not in accordance with the provisions of this act or prior laws.

1.4 Principles of Professional Practice

a. The Registration Law does not contain any guidelines to professional practice. It only defines the condition of professional practice, namely, "responsible charge":

"Responsible charge" means a position that requires initiative, skill and independent judgment, and implies such degree of competence and accountability gained by technical education and

experience of a grade and character as is sufficient to qualify an individual to personally and independently engage in and be entrusted with the work involved in the practice of … land surveying (p.3)

b. However, Articles of Incorporation of the Pennsylvania Society of Land Surveyors state that:

"The corporation is to be formed for the purpose of promoting the interests of the land surveying profession in Pennsylvania and improving the professional status of Pennsylvania land surveyors by: (a) Encouraging maintenance of the highest standards of professional ethics and practice" …

Commentary: The ten precepts (1.3, a through j) can be interpreted as prohibiting excessive and deficient ways of engaging in the five common professional business practices:

- setting acceptable fees (a and f),
- advertising (b and g),
- competing for work (d and h),
- taking charge of the work (c and j),
- taking responsibility for completed work (e and i).

Other interpretations of the code may be possible.

[http://www.psls.org/info/manualpractice.htm] (cited January 23 2004)

Annex I - Institute of Environmental Studies, Univ. of Wisconsin-Madison (USA)

Code of Ethics for GIS Professionals
Environmental Monitoring Program, Institute for Environmental Studies
Course IES 400 – GIS and Society - 5 August 2001
Contributing authors
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Lewelling, John Marks, Jeff Maxted, Bruce Moore, Brendan Vierk Rivera, Anna Weitzel

I. Introduction to the Code

The Code of Ethics for the GIS Professional is a foundation document that sets guidelines for making
ethical decisions. The code emphasizes the social responsibilities that GIS professionals have to
society. In addition, the code presents goals and aspirations that professionals should strive toward
throughout their careers. A methodology for resolving specific issues facing the GIS community is
included in Appendix A. In summary, the purpose of the code is to serve as guidance to make
decisions that will benefit society, the field of GIS, and the GIS professional.

A. Target audience

The code is intended as guidance for those who contribute by direct participation or by teaching, to the
analysis, development, design, certification, maintenance, manipulation, specification and testing of
GIS and its products.

B. Objectives
- To serve as a foundation for ethical decision-making.
- To be broad enough to be applicable in most situations.
- To provide direction and goals for the GIS professional.

C. Organization
- Social Implications
- Professional Integrity
- Competency and Professional Development
- Professional Relations
- Professional Responsibility

D. Points of consideration
- The concern for the health, safety and welfare of the public is the primary consideration on the use of this code.
- This code is subject to interpretation, such that conflict with individual sections and points may occur.
- This code is intended as a base document only. An agency, institution, or business may need to expand the code to address its particular needs. It could be the foundation of guidelines for professional practice, but is not intended to provide specific rules.
- The GIS community and the public should regularly review the code.

II. Social Implications

For the good of society, geographic information professionals need to be sensitive to ethical issues
surrounding the use of spatial information technologies. Consideration of the ethical themes listed
below may provide the means to avoid potential civil abuses of these technologies.

A. Promote procedures that protect the health, safety and welfare of people and the environment as
well as meet individual and institutional objectives.

B. Consider the short and long-term relevancy
- When presenting or releasing information, consider immediate consequences and the future impacts of your work. Your procedures may require reviewing social and environmental impacts (e.g. environmental impact reports).

C. Represent your organization in a socially responsible manner
- Guard against presenting information in isolation. Seek the advice of coworkers and experts.
- Outline the options for the proposed action.
- Consult all the relevant persons and groups. Review what someone you respect might think if you showed your list of options to him or her.
- Promote and articulate social responsibility and ethical behavior in the organization.

D. Contribute to society's well being
- In addition to a safe social environment, human well-being includes a safe and healthy natural environment.
- Be cognizant of other cultural values. Understand the culture and value system your project affects, and establish project management procedures that do not negatively impact their world view.

E. Respect the privacy of others
- Observe the privacy of others by preventing disclosure of personal information.
- Use only that information necessary for the project. In other words, do not collect or distribute irrelevant data that unnecessarily compromises an individual's or an institution's privacy.
- Prevent the release of information that may damage or hurt individuals or institutions.

F. Avoid causing harm
- Avoid injury or other negative consequences (i.e. loss of information, loss of or damage to property, loss of life, or negative environmental impacts).

G. Evaluate moral and legal imperatives
- If faced with an ethical dilemma, strive to do what is right, not just what is legal. To assist in making the decision one should recognize a moral issue, get the facts, evaluate alternative actions, and then review the results of the action taken. Appendix A further discusses a decision making approach.

III. Professional Integrity

The GIS professional shall be diligent about the completion of his or her duties, and do so in such a way that it reflects well on the individual and the profession.

A. Respect privacy
- Follow all laws regarding sensitive information and its disclosure. In addition, one should only gather, use and disseminate data that is necessary.

B. Be forthcoming about limitations and uncertainty in data
- Openly and explicitly state any limitations of the data, in addition to providing recommendations regarding its suitability for use.

C. Avoid misleading data presentation
- When presenting data, use any standard cartographic practice so long as there is not an inherent intent to deceive.

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D. Avoid conflicts of interest
- Avoid situations that are in conflict with one's professional responsibilities so as not to promote one's own interest at the expense of the profession, client or employer.

E. Understand limits of competence
- Take only those assignments for which one is qualified. One shall portray his/her skills and knowledge accurately and honestly.

F. Acknowledge other's contributions

IV. Competency and Professional Development

The GIS professional shall maintain competency in his/her area of expertise and continue to grow professionally through activities such as those described below:

A. Continue to upgrade professional knowledge and skills.
B. Maintain professional knowledge; seek information about current laws, accepted practices, and relevant standards pertaining to professional work.
C. Maintain an interest in professional organizations and their activities.
D. Accept and provide appropriate employment review.
E. Consult, when necessary, with colleagues in their areas of expertise.
F. Continue to develop professional skills that supplement technical skills, such as communication, project management, and productive peer relations.

V. Professional Relations

GIS professionals must maintain a good working relationship with the GIS community and promote the advancement of GIS through activities described below.

A. Encourage others to adhere to this code.
B. Seek the advice from one's colleagues when faced with an ethical dilemma.
C. Review the work of others in an objective, candid, and properly documented way.
D. Respect and seek, when necessary, professional review and opinions from colleagues in their areas of competence.
E. Give a fair hearing to the opinion, concerns, or complaints of a colleague.
F. Do not unfairly intervene in the career of any colleague; however concerns for the employer, client, or the public interest may compel GIS professionals, in good faith, to question the competence of a colleague.
G. Assist colleagues in professional development.
H. Take appropriate action if one discovers a colleague engaging in unethical behavior.

VI. Professional Responsibility

This section pertains specifically to a professional's project duties and client interactions.

A. Work toward the best possible data quality and integrity
- Ensure data being used are up-to-date, accurate and complete.
- Enforce clear retention and disposal rules.
- In order to assure accurate and consistent data management, all spatial data should be accompanied by metadata that adhere to Federal Geographic Data Committee's Content Standard for Digital Geospatial Metadata to the extent practicable. Non-spatial data should include appropriate information about data sources, history, accuracy, and methods of analysis and completeness.

- Be forthcoming about any limitations and uncertainty in your data, in addition to providing recommendations regarding its suitability for use. Do not misrepresent the characteristics of the data. Report and correct any errors found in data.

B. Assure Accountability
- Accept responsibility for and be able to adequately answer questions regarding sources and pocesses used.

C. Promote public knowledge of correct use of GIS

D. Comply with laws and mandates
- Obey existing laws, noting that there may be a compelling ethical reason to challenge a law, for instance, if it is antiquated, obsolete or judged to be immoral. However, one must accept responsibility for one's actions if one does choose to disobey the law.
- Follow all laws regarding sensitive information and its disclosure.

E. Keep current with this code and any updates or amendments

F. Adhere to appropriate data security procedures

G. Acknowledge any sources of data that are used in any project

VII. Background

Professionals working with Geographic Information Systems (GIS) are entering a new, evolving, and multidisciplinary field. GIS has been defined as a powerful set of tools for collecting, storing, retrieving, transforming and displaying spatial data from the real world (Burrough 1986). GIS has wider implications than just another tool, as evidenced by practitioners who are accessing growing levels of personal information and using the technology to build decision support systems. The GIS professional can perform complex spatial analyses by combining large databases that list attributes about people, their activities, and the environment. As the field continues to grow at a rapid pace, the systems are affecting operations in both the public and private sectors (Onsrud et al. 1994).

Increasingly, a GIS professional is building systems that affect people's lives. Today, the GIS professional is working in an unregulated system. For those entering the field, there is little guidance to determine the appropriate educational needs to apply GIS technology. Legal issues are complicating the responsibilities of people working in the field. In addition, the constant innovation of Information Technology makes it difficult for practitioners to foresee potential problems resulting from their work. Specifically, some of the current issues that are unresolved in the profession include:

- **Education**: Programs in GIS are not standardized. Educational opportunities range from completing a few courses in GIS and obtaining a certificate of achievement to graduate degrees focused in geospatial information science.
- **Regulation**s: The licensing and certification of GIS practitioners are being hotly debated (for and against) in the geospatial community (Gibson 2000; Somers 2000).
- **Legal Issue**s: Copyright laws are blurred regarding the use of digital information such as maps and databases. Reproducing work in digital forms may inadvertently infringe upon the rightful ownership of that data (Cho 1998).
- **Rights of privac**y: Legal aspects of privacy are vague in regards to the access of information, distribution of data, and the integration of databases with spatial information (FGDC 1998; Onsrud et al. 1994). In some cases, privacy interests may conflict with open access laws governing public agencies.

The rapid development of technology in recent decades presents significant implications to society and the natural environment. The field of GIS has evolved faster than social and legal scientists' ability to evaluate the potential impacts of these new tools. Because we have an incomplete understanding of the full implication of these spatial information technologies on society and the environment, utmost care must be taken in their use. For these reasons, special consideration should be given to the impact of GIS on society. Others in the field have begun a dialogue on the various ways in which GIS can affect society (Tulloch et al. 1998; Openshaw 1996; Dale 1994; UCGIS 1998). From the discussion, a consensus has been formulated that a code of ethics would both define a professional's responsibility to the discipline of GIS and would be the first step in addressing public concerns.

Many other professional societies have well-developed codes of conduct such as the Association for Computing Machinery, American Society for Photogrammetry and Remote Sensing, and land surveyors associations. The impetus behind these codes is to document a set of guidelines that benefits both society and the professional organization. A GIS ethical code of conduct can have other benefits. The writing of a code can highlight problems facing the GIS community. Thereby the document can initiate further discourse and explore solutions to issues of privacy, data quality, and liability. One report, Craig (1993), clearly states other valuable functions an ethical code of conduct can fulfill. A code can establish goals the professional can aspire to, set guidelines for professional expectations, and serve as a source of public evaluation. An ethical code of conduct is needed for the GIS professional as they are entering an evolving field of technology and an explosion of access to information. A GIS code of conduct will benefit both society and the field of GIS. For these reasons, we have written a Code of Ethics for the GIS Professional.

The Code of Ethics for the GIS Professional evolved into a foundation document, intended to be appropriate for most organizations and businesses, yet written with sufficient detail to be applicable to the professional. Furthermore, the code was built to be a dynamic document. The intention is that the GIS community will expand upon these ethical codes to address issues facing the professional, today and tomorrow.

The authors of this code were students participating in the course "GIS and Society" led by Professor Stephen J. Ventura, at the University of Wisconsin-Madison. Initially, the students drafted the code as a collaborated effort. The draft code then received peer review from people in both the public and private sectors. Comments resulting from the peer review were discussed and considered for incorporation into the code.

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APPENDIX A – Ethical Decision Making Process

1. Recognize a Moral Issue

   a. Determine if there is something wrong personally, interpersonally or socially.
   b. Avoid conflict that could be damaging to people, institutions or the environment. There may be issues that go deeper than legal or institutional concerns.

2. Get the Facts

   a. Determine the relevant facts of the project.
   b. Determine what individuals and groups have an important stake in the outcome. Explain what is at stake for each group.
   c. Decide if some have a greater stake because they have a special need (e.g., those who are poor or excluded) or because we have special obligations to them. Other important stakeholders may exist in addition to those directly involved.

3. Evaluate the Alternative Actions from Various Moral Perspectives

   a. Determine which option will produce the most good and do the least harm. Define the mitigating circumstances.
   b. Look at which option respects the rights and dignity of all stakeholders. Treat everyone fairly even if not everyone gets all they want.
   c. Promote the common good and help all participate more fully in the goods we share as a society, community, company, and family.
   d. Enable the deepening or development of those virtues or character traits that we value as individuals, as a profession and as a society.

4. Make a Decision

a.   Consider which of the option is the right thing to do legally, morally and ethically.

5. Review Results of the Action Taken

a.   Review the impacts to people and the environment both during and after the project.

Annex J - Association for Computing Machinery (ACM)

ACM Code of Ethics and Professional Conduct
Adopted by ACM Council 10/16/92.

Preamble.

Commitment to ethical professional conduct is expected of every member (voting members, associate members, and student members) of the Association for Computing Machinery (ACM).

This Code, consisting of 24 imperatives formulated as statements of personal responsibility, identifies the elements of such a commitment. It contains many, but not all, issues professionals are likely to face. Section 1 outlines fundamental ethical considerations, while Section 2 addresses additional, more specific considerations of professional conduct. Statements in Section 3 pertain more specifically to individuals who have a leadership role, whether in the workplace or in a volunteer capacity such as with organizations like ACM. Principles involving compliance with this Code are given in Section 4. The Code shall be supplemented by a set of Guidelines, which provide explanation to assist members in dealing with the various issues contained in the Code. It is expected that the Guidelines will be changed more frequently than the Code.

The Code and its supplemented Guidelines[2] are intended to serve as a basis for ethical decision making in the conduct of professional work. Secondarily, they may serve as a basis for judging the merit of a formal complaint pertaining to violation of professional ethical standards.

It should be noted that although computing is not mentioned in the imperatives of Section 1, the Code is concerned with how these fundamental imperatives apply to one's conduct as a computing professional. These imperatives are expressed in a general form to emphasize that ethical principles which apply to computer ethics are derived from more general ethical principles.

It is understood that some words and phrases in a code of ethics are subject to varying interpretations, and that any ethical principle may conflict with other ethical principles in specific situations. Questions related to ethical conflicts can best be answered by thoughtful consideration of fundamental principles, rather than reliance on detailed regulations.

1. General Moral Imperatives.

As an ACM member I will ....

1.1 Contribute to society and human well-being.

This principle concerning the quality of life of all people affirms an obligation to protect fundamental human rights and to respect the diversity of all cultures. An essential aim of computing professionals is to minimize negative consequences of computing systems, including threats to health and safety. When designing or implementing systems, computing professionals must attempt to ensure that the products of their efforts will be used in socially responsible ways, will meet social needs, and will avoid harmful effects to health and welfare.

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[2] Supplemental Guidelines were developed by the **Task Force for the Revision of the ACM Code of Ethics and Professional Conduct**: Ronald E. Anderson, Chair, Gerald Engel, Donald Gotterbarn, Grace C. Hertlein, Alex Hoffman, Bruce Jawer, Deborah G. Johnson, Doris K. Lidtke, Joyce Currie Little, Dianne Martin, Donn B. Parker, Judith A. Perrolle, and Richard S. Rosenberg. The Task Force was organized by ACM/SIGCAS and funding was provided by the ACM SIG Discretionary Fund. This Code and the supplemental Guidelines were adopted by the ACM Council **on October 16, 1992**.

In addition to a safe social environment, human well-being includes a safe natural environment. Therefore, computing professionals who design and develop systems must be alert to, and make others aware of, any potential damage to the local or global environment.

1.2 Avoid harm to others.

"Harm" means injury or negative consequences, such as undesirable loss of information, loss of property, property damage, or unwanted environmental impacts. This principle prohibits use of computing technology in ways that result in harm to any of the following: users, the general public, employees, employers. Harmful actions include intentional destruction or modification of files and programs leading to serious loss of resources or unnecessary expenditure of human resources such as the time and effort required to purge systems of "computer viruses."

Well-intended actions, including those that accomplish assigned duties, may lead to harm unexpectedly. In such an event the responsible person or persons are obligated to undo or mitigate the negative consequences as much as possible. One way to avoid unintentional harm is to carefully consider potential impacts on all those affected by decisions made during design and implementation. To minimize the possibility of indirectly harming others, computing professionals must minimize malfunctions by following generally accepted standards for system design and testing. Furthermore, it is often necessary to assess the social consequences of systems to project the likelihood of any serious harm to others. If system features are misrepresented to users, coworkers, or supervisors, the individual computing professional is responsible for any resulting injury.

In the work environment the computing professional has the additional obligation to report any signs of system dangers that might result in serious personal or social damage. If one's superiors do not act to curtail or mitigate such dangers, it may be necessary to "blow the whistle" to help correct the problem or reduce the risk. However, capricious or misguided reporting of violations can, itself, be harmful. Before reporting violations, all relevant aspects of the incident must be thoroughly assessed. In particular, the assessment of risk and responsibility must be credible. It is suggested that advice be sought from other computing professionals. See principle 2.5 regarding thorough evaluations.

1.3 Be honest and trustworthy.

Honesty is an essential component of trust. Without trust an organization cannot function effectively. The honest computing professional will not make deliberately false or deceptive claims about a system or system design, but will instead provide full disclosure of all pertinent system limitations and problems.

A computer professional has a duty to be honest about his or her own qualifications, and about any circumstances that might lead to conflicts of interest.

Membership in volunteer organizations such as ACM may at times place individuals in situations where their statements or actions could be interpreted as carrying the "weight" of a larger group of professionals. An ACM member will exercise care to not misrepresent ACM or positions and policies of ACM or any ACM units.

1.4 Be fair and take action not to discriminate.

The values of equality, tolerance, respect for others, and the principles of equal justice govern this imperative. Discrimination on the basis of race, sex, religion, age, disability, national origin, or other such factors is an explicit violation of ACM policy and will not be tolerated.

Inequities between different groups of people may result from the use or misuse of information and technology. In a fair society, all individuals would have equal opportunity to participate in, or benefit from, the use of computer resources regardless of race, sex, religion, age, disability, national origin or

other such similar factors. However, these ideals do not justify unauthorized use of computer resources nor do they provide an adequate basis for violation of any other ethical imperatives of this code.

1.5 Honor property rights including copyrights and patent.

Violation of copyrights, patents, trade secrets and the terms of license agreements is prohibited by law in most circumstances. Even when software is not so protected, such violations are contrary to professional behavior. Copies of software should be made only with proper authorization. Unauthorized duplication of materials must not be condoned.

1.6 Give proper credit for intellectual property.

Computing professionals are obligated to protect the integrity of intellectual property. Specifically, one must not take credit for other's ideas or work, even in cases where the work has not been explicitly protected by copyright, patent, etc.

1.7 Respect the privacy of others.

Computing and communication technology enables the collection and exchange of personal information on a scale unprecedented in the history of civilization. Thus there is increased potential for violating the privacy of individuals and groups. It is the responsibility of professionals to maintain the privacy and integrity of data describing individuals. This includes taking precautions to ensure the accuracy of data, as well as protecting it from unauthorized access or accidental disclosure to inappropriate individuals. Furthermore, procedures must be established to allow individuals to review their records and correct inaccuracies.

This imperative implies that only the necessary amount of personal information be collected in a system, that retention and disposal periods for that information be clearly defined and enforced, and that personal information gathered for a specific purpose not be used for other purposes without consent of the individual(s). These principles apply to electronic communications, including electronic mail, and prohibit procedures that capture or monitor electronic user data, including messages, without the permission of users or bona fide authorization related to system operation and maintenance. User data observed during the normal duties of system operation and maintenance must be treated with strictest confidentiality, except in cases where it is evidence for the violation of law, organizational regulations, or this Code. In these cases, the nature or contents of that information must be disclosed only to proper authorities.

1.8 Honor confidentiality.

The principle of honesty extends to issues of confidentiality of information whenever one has made an explicit promise to honor confidentiality or, implicitly, when private information not directly related to the performance of one's duties becomes available. The ethical concern is to respect all obligations of confidentiality to employers, clients, and users unless discharged from such obligations by requirements of the law or other principles of this Code.

2. More Specific Professional Responsibilities.

As an ACM computing professional I will ....

2.1 Strive to achieve the highest quality, effectiveness and dignity in both the process and products of professional work.

Excellence is perhaps the most important obligation of a professional. The computing professional must strive to achieve quality and to be cognizant of the serious negative consequences that may result from poor quality in a system.

2.2 Acquire and maintain professional competence.

Excellence depends on individuals who take responsibility for acquiring and maintaining professional competence. A professional must participate in setting standards for appropriate levels of competence, and strive to achieve those standards. Upgrading technical knowledge and competence can be achieved in several ways: doing independent study; attending seminars, conferences, or courses; and being involved in professional organizations.

2.3 Know and respect existing laws pertaining to professional work.

ACM members must obey existing local, state, province, national, and international laws unless there is a compelling ethical basis not to do so. Policies and procedures of the organizations in which one participates must also be obeyed. But compliance must be balanced with the recognition that sometimes existing laws and rules may be immoral or inappropriate and, therefore, must be challenged. Violation of a law or regulation may be ethical when that law or rule has inadequate moral basis or when it conflicts with another law judged to be more important. If one decides to violate a law or rule because it is viewed as unethical, or for any other reason, one must fully accept responsibility for one's actions and for the consequences.

2.4 Accept and provide appropriate professional review.

Quality professional work, especially in the computing profession, depends on professional reviewing and critiquing. Whenever appropriate, individual members should seek and utilize peer review as well as provide critical review of the work of others.

2.5 Give comprehensive and thorough evaluations of computer systems and their impacts, including analysis of possible risks.

Computer professionals must strive to be perceptive, thorough, and objective when evaluating, recommending, and presenting system descriptions and alternatives. Computer professionals are in a position of special trust, and therefore have a special responsibility to provide objective, credible evaluations to employers, clients, users, and the public. When providing evaluations the professional must also identify any relevant conflicts of interest, as stated in imperative 1.3.
As noted in the discussion of principle 1.2 on avoiding harm, any signs of danger from systems must be reported to those who have opportunity and/or responsibility to resolve them. See the guidelines for imperative 1.2 for more details concerning harm, including the reporting of professional violations.

2.6 Honor contracts, agreements, and assigned responsibilities.

Honoring one's commitments is a matter of integrity and honesty. For the computer professional this includes ensuring that system elements perform as intended. Also, when one contracts for work with another party, one has an obligation to keep that party properly informed about progress toward completing that work.

A computing professional has a responsibility to request a change in any assignment that he or she feels cannot be completed as defined. Only after serious consideration and with full disclosure of risks and concerns to the employer or client, should one accept the assignment. The major underlying principle here is the obligation to accept personal accountability for professional work. On some occasions other ethical principles may take greater priority.

A judgment that a specific assignment should not be performed may not be accepted. Having clearly identified one's concerns and reasons for that judgment, but failing to procure a change in that assignment, one may yet be obligated, by contract or by law, to proceed as directed. The computing

professional's ethical judgment should be the final guide in deciding whether or not to proceed. Regardless of the decision, one must accept the responsibility for the consequences.

However, performing assignments "against one's own judgment" does not relieve the professional of responsibility for any negative consequences.

2.7 Improve public understanding of computing and its consequences.

Computing professionals have a responsibility to share technical knowledge with the public by encouraging understanding of computing, including the impacts of computer systems and their limitations. This imperative implies an obligation to counter any false views related to computing.

2.8 Access computing and communication resources only when authorized to do so.

Theft or destruction of tangible and electronic property is prohibited by imperative 1.2 - "Avoid harm to others." Trespassing and unauthorized use of a computer or communication system is addressed by this imperative. Trespassing includes accessing communication networks and computer systems, or accounts and/or files associated with those systems, without explicit authorization to do so. Individuals and organizations have the right to restrict access to their systems so long as they do not violate the discrimination principle (see 1.4). No one should enter or use another's computer system, software, or data files without permission. One must always have appropriate approval before using system resources, including communication ports, file space, other system peripherals, and computer time.

3. Organizational Leadership Imperatives.

As an ACM member and an organizational leader, I will ....

Background note:

This section draws extensively from the draft IFIP Code of Ethics, especially its sections on organizational ethics and international concerns. The ethical obligations of organizations tend to be neglected in most codes of professional conduct, perhaps because these codes are written from the perspective of the individual member. This dilemma is addressed by stating these imperatives from the perspective of the organizational leader. In this context, "leader" is viewed as any organizational member who has leadership or educational responsibilities. These imperatives generally may apply to organizations as well as their leaders. In this context" organizations" are corporations, government agencies, and other "employers," as well as volunteer professional organizations.

3.1 Articulate social responsibilities of members of an organizational unit and encourage full acceptance of those responsibilities.

Because organizations of all kinds have impacts on the public, they must accept responsibilities to society. Organizational procedures and attitudes oriented toward quality and the welfare of society will reduce harm to members of the public, thereby serving public interest and fulfilling social responsibility. Therefore, organizational leaders must encourage full participation in meeting social responsibilities as well as quality performance.

3.2 Manage personnel and resources to design and build information systems that enhance the quality of working life.

Organizational leaders are responsible for ensuring that computer systems enhance, not degrade, the quality of working life. When implementing a computer system, organizations must consider the personal and professional development, physical safety, and human dignity of all workers. Appropriate human-computer ergonomic standards should be considered in system design and in the workplace.

3.3 Acknowledge and support proper and authorized uses of an organization's computing and communication resources.

Because computer systems can become tools to harm as well as to benefit an organization, the leadership has the responsibility to clearly define appropriate and inappropriate uses of organizational computing resources. While the number and scope of such rules should be minimal, they should be fully enforced when established.

3.4 Ensure that users and those who will be affected by a system have their needs clearly articulated during the assessment and design of requirements; later the system must be validated to meet requirements.

Current system users, potential users and other persons whose lives may be affected by a system must have their needs assessed and incorporated in the statement of requirements. System validation should ensure compliance with those requirements.

3.5 Articulate and support policies that protect the dignity of users and others affected by a computing system.

Designing or implementing systems that deliberately or inadvertently demean individuals or groups is ethically unacceptable. Computer professionals who are in decision making positions should verify that systems are designed and implemented to protect personal privacy and enhance personal dignity.

3.6 Create opportunities for members of the organization to learn the principles and limitations of computer systems.

This complements the imperative on public understanding (2.7). Educational opportunities are essential to facilitate optimal participation of all organizational members. Opportunities must be available to all members to help them improve their knowledge and skills in computing, including courses that familiarize them with the consequences and limitations of particular types of systems. In particular, professionals must be made aware of the dangers of building systems around oversimplified models, the improbability of anticipating and designing for every possible operating condition, and other issues related to the complexity of this profession.

4. Compliance with the Code.

As an ACM member I will ....

4.1 Uphold and promote the principles of this Code.

The future of the computing profession depends on both technical and ethical excellence. Not only is it important for ACM computing professionals to adhere to the principles expressed in this Code, each member should encourage and support adherence by other members.

4.2 Treat violations of this code as inconsistent with membership in the ACM.

Adherence to this Code and the professionals to a code of ethics is largely a voluntary matter. However, if a member does not follow this code by engaging in gross misconduct, membership in ACM may be terminated.

Annex K - British Computer Society - Codes of Conduct, Practice and Bye-laws

BCS Code of Conduct
(http://www.bcs.org/BCS/Join/WhyJoin/Conduct.htm)

Introduction

This Code sets out the professional standards required by the Society as a condition of membership. It applies to members of all grades, including students, and affiliates, and also non-members who offer their expertise as part of the Society's Professional Advice Register.

Within this document, the term 'relevant authority' is used to identify the person or organisation which has authority over your activity as an individual. If you are a practising professional, this is normally an employer or client. If you are a student, this is normally an academic institution.

The Code governs your personal conduct as an individual member of the BCS and not the nature of business or ethics of the relevant authority. It will, therefore, be a matter of your exercising your personal judgement in meeting the Code's requirements.

Any breach of the Code of Conduct brought to the attention of the Society will be considered under the Society's disciplinary procedures. You should also ensure that you notify the Society of any significant violation of this Code by another BCS member.

The Public Interest

1. You shall carry out work or study with due care and diligence in accordance with the relevant authority's requirements, and the interests of system users. If your professional judgement is overruled, you shall indicate the likely risks and consequences.

- The crux of the issue here, familiar to all professionals in whatever field, is the potential conflict between full and committed compliance with the relevant authority's wishes, and the independent and considered exercise of your judgement.
- If your judgement is overruled, you are encouraged to seek advice and guidance from a peer or colleague on how best to respond.

2. In your professional role you shall have regard for the public health, safety and environment.

- This is a general responsibility, which may be governed by legislation, convention or protocol.
- If in doubt over the appropriate course of action to take in particular circumstances you should seek the counsel of a peer or colleague.

3. You shall have regard to the legitimate rights of third parties.

- The term 'third Party' includes professional colleagues, or possibly competitors, or members of 'the public' who might be affected by an IS project without their being directly aware of its existence.

4. You shall ensure that within your professional field/s you have knowledge and understanding of relevant legislation, regulations and standards, and that you comply with such requirements.

- As examples, relevant legislation could, in the UK, include The UK Public Disclosure Act, Data Protection or Privacy legislation, Computer Misuse law, legislation concerned with the export or import of technology, possibly for national security reasons, or law relating to intellectual property. This list is not exhaustive, and you should ensure that you are aware of any legislation relevant to your professional responsibilities.

- In the international context, you should be aware of, and understand, the requirements of law specific to the jurisdiction within which you are working, and, where relevant, to supranational legislation such as EU law and regulation. You should seek specialist advice when necessary.

5. You shall conduct your professional activities without discrimination against clients or colleagues

- Grounds of discrimination include race, colour, ethnic origin, sexual orientation
  - All colleagues have a right to be treated with dignity and respect.
- You should adhere to relevant law within the jurisdiction where you are working and, if appropriate, the European Convention on Human Rights.
- You are encouraged to promote equal access to the benefits of IS by all groups in society, and to avoid and reduce 'social exclusion' from IS wherever opportunities arise.

6. You shall reject any offer of bribery or inducement.

Duty to Relevant Authority

7. You shall avoid any situation that may give rise to a conflict of interest between you and your relevant authority. You shall make full and immediate disclosure to them if any conflict is likely to occur or be seen by a third party as likely to occur.

8. You shall not disclose or authorise to be disclosed, or use for personal gain or to benefit a third party, confidential information except with the permission of your relevant authority, or at the direction of a court of law.

9. You shall not misrepresent or withhold information on the performance of products, systems or services, or take advantage of the lack of relevant knowledge or inexperience of others.

Duty to the Profession

10. You shall uphold the reputation and good standing of the BCS in particular, and the profession in general, and shall seek to improve professional standards through participation in their development, use and enforcement.

- As a Member of the BCS you also have a wider responsibility to promote public understanding of IS - its benefits and pitfalls - and, whenever practical, to counter misinformation that brings or could bring the profession into disrepute.
- You should encourage and support fellow members in their professional development and, where possible, provide opportunities for the professional development of new members, particularly student members. Enlightened mutual assistance between IS professionals furthers the reputation of the profession, and assists individual members.

11. You shall act with integrity in your relationships with all members of the BCS and with members of other professions with whom you work in a professional capacity.

12. You shall have due regard for the possible consequences of your statements on others. You shall not make any public statement in your professional capacity unless you are properly qualified and, where appropriate, authorised to do so. You shall not purport to represent the BCS unless authorised to do so.
- The offering of an opinion in public, holding oneself out to be an expert in the subject in question, is a major personal responsibility and should not be undertaken lightly.
- To give an opinion that subsequently proves ill founded is a disservice to the profession, and to the BCS.

13. You shall notify the Society if convicted of a criminal offence or upon becoming bankrupt or disqualified as Company Director.

Professional Competence and Integrity

14. You shall seek to upgrade your professional knowledge and skill, and shall maintain awareness of technological developments, procedures and standards which are relevant to your field, and encourage your subordinates to do likewise.

15. You shall not claim any level of competence that you do not possess. You shall only offer to do work or provide a service that is within your professional competence.

- You can self-assess your professional competence for undertaking a particular job or role by asking, for example,
    i.   am I familiar with the technology involved, or have I worked with similar technology before?
    ii. have I successfully completed similar assignments or roles in the past?
    iii. can I demonstrate adequate knowledge of the specific business application and requirements successfully to undertake the work?

16. You shall observe the relevant BCS Codes of Practice and all other standards which, in your judgement, are relevant, and you shall encourage your colleagues to do likewise.

17. You shall accept professional responsibility for your work and for the work of colleagues who are defined in a given context as working under your supervision.

BCS Code of Practice

Introduction

The British Computer Society sets the professional standards of competence, conduct and ethical practice for computing in the United Kingdom. The Society was incorporated by Royal Charter in July 1984.

This Code of Practice is directed to all professional members of The British Computer Society and was issued in September 1999. It is a generic Code of Practice, consisting essentially, of a series of statements which prescribe minimum standards of practice, to be observed by all members.

The Code is concerned with professional responsibility. All members have responsibilities: to clients, to users, to the State and society at large. Those members who are employees also have responsibilities to their employers and employers' customers and, often, to a Trade Union. In the event of apparent clash in responsibilities, obligations or prescribed practice the Society's Registrar should be consulted at the earliest opportunity.

The Code is intended to be observed in the spirit and not merely the word. The BCS membership covers all occupations relevant to the use of computers and it is not possible to define the Code in terms directly relevant to each individual member.

However, the Society has now recognised that due to the continuing diversity of the profession, it must encourage its members to produce additional Codes which are applicable and relevant to specific sectors of the profession. This generic Code will enable the production of such Codes which will be presented to, and approved by, the Qualifications and Standards Board prior to circulation.

The General Code of Practice
(http://www.bcs.org/BCS/Join/WhyJoin/Practice.htm)

Purpose

A **Code of Practice is a set of principles established to ensure** that Information Systems (IS) Practitioners maintain **recognised standards of competence** in all aspects of IS practice. The **Code of Conduct establishes the principles of behaviour in IS practice**.

This General Code of Practice has been introduced to:

- Provide guidance to all Information Systems Practitioners regardless of their specialism.
- To allow for the provision of sector-specific Codes of Practice governing practice in specialist areas.

Employers, clients, members of the public or other professions should expect the same high standards of practice in Information Systems as are expected from members of other recognised professions. Professional Institutions set standards of technical capability which professional Practitioners must satisfy, and they prescribe standards of professional practice to which their members must conform or be held accountable for any lapse.

Scope

This General Code of Practice applies to all Professional Members of the British Computer Society (BCS) and to such specialist communities of Practitioners who choose to adopt a sector-specific Code.

Responsibilities of Information Systems Practitioners

Information Systems Practitioners shall seek to upgrade their professional knowledge and skill and shall maintain awareness of technological developments, procedures and standards which are relevant to their field, and shall encourage their subordinates to do likewise.

The Practitioner has a duty of professional care to abide by those BCS sector-specific Codes of Practice which have any bearing on the practitioner's current role.

Should the Practitioner discover any difficulty in applying a Code of Practice, he or she shall immediately bring it to the attention of the BCS Registrar.

Information Systems Practitioners who are BCS members adopting the General Code of Practice are also bound by the requirements of the BCS Code of Conduct. Others adopting this Code of Practice are also advised to adhere to the Code of Conduct.

Authorisation

This General Code of Practice is approved by Council with the authority of Qualifications and Standards Board.

Sector-specific Codes to be adopted must be:

- Authorised by an appropriate specialist community, then
- Approved by Qualifications and Standards Board.

Development and Maintenance of Codes of Practice

All BCS-initiated Codes of Practice are maintained through Qualifications and Standards Board.

In the event that the BCS adopts Codes of Practice originating from other recognised bodies, these will be maintained by the originating bodies.

Guidance on how to produce sector-specific Codes of Practice is available separately from the BCS Registrar, 1 Sanford Street, Swindon, SN1 1HJ. Tel: +44 (0)1793 417417. Fax: +44 (0)1793 480270. Email: mbryer@hq.bcs.org.uk

British Computer Society Bye-laws
(as amended by Order in Council 13 November 2003)
(http://www.bcs.org/NR/rdonlyres/E3E4288A-E6AF-475B-A87E-515FC0B0F867/0/byelaws.pdf)
(extract dealing with professional conduct enforcement)

Continuance of Membership

17. Persons shall continue to be members of the Society only for so long as they shall comply with such conditions of and qualifications for membership, and shall pay such fees and subscriptions, appropriate to their particular grade as shall for the time being be prescribed by or in accordance with these Bye-laws.

Professional Conduct

18. (a) All members of the Society shall exercise their professional skill and judgement to the best of their ability and discharge their professional responsibilities with integrity. They shall at all times order their conduct to safeguard the public interest and to the best of their ability uphold the reputation and dignity of the Profession. They shall at all times act in accordance with the Code of Conduct.

(b) The Trustee Board shall make regulations to be adopted for the investigation of a complaint against a member of the Society or an indication of apparent misconduct by such a member, and the appointment and authorisation of a committee of the Trustee Board to hear, investigate and rule on any such complaint, and to impose and enforce penalties against any such member or (where the consent of such member to accept any such penalty is withheld or withdrawn) to make recommendations to the Trustee Board.

(c) The Trustee Board shall make regulations for the procedure to be adopted for the lodging and administration of an appeal by a member of the Society against a decision of the committee appointed and authorised to investigate the complaint against such member.

Cessation of Membership

19. Persons shall cease to be members of the Society in any of the following cases:—

(a) If they shall fail for a period of four months to pay all subscriptions and fees for the time being due from them to the Society.

(b) If they shall resign by giving written notice thereof to the Chief Executive.

(c) If they shall be removed from membership of the Society by a resolution passed by not less than two-thirds of the members of the Trustee Board present at a quorate meeting of which not less than twenty-one days' previous notice specifying the intention to propose such resolution, and the general nature of the grounds on which it is proposed, shall have been sent to all the members of the Trustee Board, provided always that the member whose removal is in question shall first have been given an opportunity of being heard by a committee of the Trustee Board, of which hearing the said member shall be given not less than twenty-one days' notice in writing of the general nature of the grounds on which removal is proposed and at which hearing the said member shall have an opportunity to call and cross-examine witnesses and generally to put forward such explanation or defence as the said member

may think fit and provided that both the said member and the Society shall be entitled to be represented or assisted at such hearing by a solicitor, a barrister or an assessor. Provided further that any person whose membership shall cease in accordance with this Bye-law shall remain liable to the Society for all fees, subscriptions and other sums which may have been due from such person at the date membership ceased.

20. The Trustee Board may from time to time make regulations for the affiliation or association of persons or bodies corporate with the Society in such manner as the Trustee Board may from time to time determine and with such privileges and rights as the Trustee Board shall think fit: provided that no such person shall be a member of the Society for any purpose of the Laws of the Society.

21. The Trustee Board shall make regulations for the procedure to be adopted for the admission or re-admission of persons to each grade of membership or on transfer from one grade of membership to another and for the termination of membership of the Society and may impose such other requirements as to the observance of the Laws of the Society and adherence to the proper standards and practices of the Profession as may be thought appropriate.

22. The Trustee Board shall in all cases have absolute discretion in denying membership of the Society to any person.

Annex L - The Chartered Institute for Library and Information Professionals (CILIP)

Ethical Principles and Code of Professional Practice for Library and Information Professionals
(http://www.cilip.org.uk/about/code.html)

Library and information professionals are frequently the essential link between information users and the information or piece of literature which they require. They therefore occupy a privileged position which carries corresponding responsibilities. In addition, whether they are self-employed or employed, their position is sometimes a sensitive one, which may impose a need to balance conflicting requirements.

The purpose of the Principles and Code which follow this introduction is to provide a framework to help library and information professionals, who are members of CILIP, to manage the responsibilities and sensitivities which figure prominently in their work. There is a statement of Ethical Principles and a more extended Code of Professional Practice, which applies these principles to the different groups and professionals to which our members must relate. The Code also makes some additional points with regard to professional behaviour. Given the diversity of the information profession, it is inevitable that not every statement in the Code of Professional Practice will be equally applicable to every member of CILIP. However, the Ethical Principles ought to command more general support, even though some members may not feel the force of each one of them to the same extent in their day-to-day experience. The Principles and Code assume that respect for duly enacted and duly enforced law is a fundamental responsibility for everybody. However the Principles and Code may provide additional guidance where there appears to be a conflict of responsibilities.

By the terms of its Royal Charter, CILIP has a responsibility to "the public good". It is therefore anticipated that our Ethical Principles and our Code of Professional Practice may be of interest well beyond the immediate limits of the membership of CILIP, both to those whose work bears close comparison with ours, and also to those who may, from time to time, want a clear statement of our ethical principles and what we consider to be good professional practice.

Associated with these Principles and Code, there is a growing collection of practical examples, illustrating how information professionals and others can use the Principles and Code to help them cope with ethical dilemmas they may face. In further support of the Principles and Code, CILIP has established an Ethics Panel of experienced members of the profession, and they and the professional staff of CILIP are available to members who may need additional help in resolving ethical issues. In those instances where there appears to have been a significant breach of the Code of Professional Practice, this may be a matter for the CILIP Disciplinary Committee. According to the Regulations the Disciplinary Committee is required to have regard to the Code of Professional Conduct in its work.

Ethical Principles for Library and Information Professionals

The conduct of members should be characterised by the following general principles, presented here in no particular order of priority:

1. Concern for the public good in all professional matters, including respect for diversity within society, and the promoting of equal opportunities and human rights.
2. Concern for the good reputation of the information profession.
3. Commitment to the defence, and the advancement, of access to information, ideas and works of the imagination.
4. Provision of the best possible service within available resources whilst balancing the needs of actual and potential users and the reasonable demands of employers.
5. Equitable treatment of all information users.
6. Impartiality, and avoidance of inappropriate bias, in acquiring and evaluating information and in mediating it to other information users.

7. Respect for confidentiality and privacy in dealing with information users.
8. Concern for the conservation and preservation of our information heritage in all formats.
9. Respect for, and understanding of, the integrity of information items and for the intellectual effort of those who created them.
10. Commitment to maintaining and improving personal professional knowledge, skills and competences.
11. Respect for the skills and competences of all others, whether information professionals or information users, employers or colleagues.

Code of Professional Practice for Library and Information Professionals

This Code applies the ethical principles to the different groups and interests to which CILIP members must relate. The Code also makes some additional points with regard to professional behaviour. The principles and values will differ in their relative importance according to context.

A: Personal Responsibilities

People who work in the information profession have personal responsibilities which go beyond those immediately implied by their contract with their employers or clients. Members should therefore:

1. strive to attain the highest personal standard of professional knowledge and competence
2. ensure they are competent in those branches of professional practice in which qualifications and/or experience entitle them to engage by keeping abreast of developments in their areas of expertise
3. claim expertise in areas of library and information work or in other disciplines only where their skills and knowledge are adequate

B: Responsibilities to Information and its Users

The behaviour of professionals who work with information should be guided by a regard for the interests and needs of information users. People working in the information profession also need to be conscious that they have responsibility for a growing heritage of information and data, irrespective of format. This includes works of the imagination as well as factual data. Members should therefore:

1. ensure that information users are aware of the scope and remit of the service being provided
2. make the process of providing information, and the standards and procedures governing that process, as clear and open as possible
3. avoid inappropriate bias or value judgements in the provision of services
4. protect the confidentiality of all matters relating to information users, including their enquiries, any services to be provided, and any aspects of the users' personal circumstances or business
5. deal fairly with the competing needs of information users, and resolve conflicting priorities with due regard for the urgency and importance of the matters being considered
6. deal promptly and fairly with any complaints from information users, and keep them informed about progress in the handling of their complaints.
7. ensure that the information systems and services for which they are responsible are the most effective, within the resources available, in meeting the needs of users
8. ensure that the materials to which they provide access are those which are most appropriate to the needs of legitimate users of the service
9. defend the legitimate needs and interests of information users, while upholding the moral and legal rights of the creators and distributors of intellectual property
10. respect the integrity of information sources, and cite sources used, as appropriate
11. show an appropriate concern for the future information needs of society through the long term preservation and conservation of materials as required, as well as an understanding of proper records management

C: Responsibilities to Colleagues and the Information Community

The personal conduct of information professionals at work should promote the profession in the best possible manner at all times. Members should therefore:

1. act in ways that promote the profession positively, both to their colleagues and to the public at large
2. afford respect and understanding to other colleagues and professionals and acknowledge their ideas, contributions and work, wherever and whenever appropriate
3. refer to colleagues in a professional manner and not discredit or criticise their work unreasonably or inappropriately
4. when working in an independent capacity, conduct their business in a professional manner that respects the legitimate rights and interests of others
5. encourage colleagues, especially those for whom they have a line-management responsibility, to maintain and enhance their professional knowledge and competence
6. refrain from ascribing views to, or speaking on behalf of, CILIP, unless specifically authorised to do so
7. report significant breaches of this Code to the appropriate authorities
8. refrain from any behaviour in the course of their work which might bring the information profession into disrepute

D: Responsibilities to Society

One of the distinguishing features of professions is that their knowledge and skills are at the service of society at large, and do not simply serve the interests of the immediate customer. Members should therefore:

1. consider the public good as well as the immediate claims arising from their employment and their professional duties
2. promote equitable access for all members of society to public domain information of all kinds and in all formats
3. strive to achieve an appropriate balance within the law between demands from information users, the need to respect confidentiality, the terms of their employment, the public good and the responsibilities outlined in this Code
4. encourage and promote wider knowledge and acceptance of, and wider compliance with, this Code, both among colleagues in the information professions and more widely among those whom we serve

E: Responsibilities as Employees

Members who are employed have duties that go beyond the immediate terms of their employment contract. On occasion these may conflict with the immediate demands of their employer but be in the broader interest of the public and possibly the employer themselves. Members should therefore [1]:

1. develop a knowledge and understanding of the organisation in which they work and use their skills and expertise to promote the legitimate aims and objectives of their employer
2. avoid engaging in unethical practices during their work and bring to the attention of their employer any concerns they may have concerning the ethics or legality of specific decisions, actions or behaviour at work

[1] It is recognised that sometimes employers have to make decisions that may impact adversely on levels of service or the employment of staff. This is not in itself unethical behaviour but there might be circumstances in which it could be – the lawfulness of the action or the way it is managed for instance