ABSTRACT. To effectively pursue ethical action, the business community must recognize that the fundamental form of human association is not the “social contract” into which persons enter as atomic individuals, making partial commitments to each other for the purpose of gaining limited common ends or of satisfying certain laws. The fundamental form of human association is rather the face to face community in which ongoing commitments are the rule and in which aspects of every individual’s experience are conditioned by the continuing membership. The following discussion initiates a preliminary phase in the consideration of what constitutes ethical issues associated with the business applications of expert systems. The focus is on knowledge based expert system applications in public accounting, specifically in the audit domain. Prior research on the development and use of expert systems in auditing has focused on a limited set of ethical issues. Niebuhr’s theory of the “the responsible self” is used here to broaden the scope of what constitutes an ethical issue and provides a framework for identifying responsible action. Within this framework, an action is responsible if it takes into consideration ongoing relationships among the stakeholder groups affected. Actions prior to the development of the system along with the potential consequences for the system must be considered. The discursive requirements that provide the context and conditions necessary for implementing the proposed theoretical framework are presented and an illustration of how the responsibility ethic can be implemented in the audit expert system domain is developed.

KEY WORDS: expert systems, information technology, responsibility ethics, stakeholder committee, systems development

Expert systems (ES) are computer systems designed to make expert level decisions within complex domains. The business applications of this advanced information technology has been varied and broad reaching, directed toward making operational, management and strategic decisions. Audit expert systems (AES) are such systems applied in the auditing environment within the public accounting domain. Major public accounting firms have been quite active in developing such systems (Baldwin-Morgan, 1993; Tomas, 1998; Yang and Vasarhelyi, 1998), and some argue that these tools and technologies will be increasingly important for survival as the firms strive to enhance their competitive position and to reduce their legal and business risk (Baldwin-Morgan, 1998). The implementation and use of these powerful systems raise a variety of significant ethical questions. As public accounting firms continue to devote substantial resources to the development of AES, dealing with the ethical risks and potential consequences to stakeholders takes on increasing significance. Although the ethical implications of AES are beginning to be recognized, much remains to be done. As an
initial step, this paper proposes an ethical framework for recognizing, discussing and evaluating AES implications for public accounting and its stakeholders. The paper is an attempt to develop and expand the ethical implications associated with the application of expert systems in business domains. The focus is on audit expert systems because the domain is relatively well developed and can be fairly easily delineated (e.g., see Vasarhelyi and Kogan, 1998). However, the implications of the discussion are germane for other large public service organizations as well as business applications in general.1

Previous research on ES ethics has been sparse and narrowly focused. Khalil (1993) considers the ethics of expert system applications in terms of the system’s capacity for and legitimacy in moral decision making. He suggests that the legal or ethical responsibility for decision-making cannot be abdicated by humans (or organizations) through the implementation of expert systems, and he concludes that ethics cannot be transferred to systems; thus, “the concept of artificial ethics is still science fiction” (p. 319). Discussion within the audit domain has centered around the expert/firm relationship and tends to focus on legal implications (Specht et al., 1991) or ownership rights (Sutton et al., 1995) associated with audit expert system use.

Following Dillard and Yuthas (1997), this paper expands the scope of these discussions by applying Niebuhr’s (1963) theory of responsibility ethics. The normative arguments of the responsibility ethic allow for explicit consideration of multiple stakeholders within the audit domain. Application of Niebuhr’s framework also provides a means through which ethical issues can be formulated with greater breadth and specificity. The purpose of this paper is therefore to show how a responsibility-oriented perspective can be used by audit firms and other public accounting constituents to identify a broad range of potential ethical issues and to address them in a systematic manner that considers stakeholder interests. As such, the responsibility ethic provides a broader basis for addressing ES applications within the audit domain.

The remainder of the paper is divided into three sections. The first section describes extant literature on AES ethics and Niebuhr’s responsibility ethic (1963) including the conditions that must obtain for it to be most successfully applied. The second section discusses how Niebuhr’s framework differs from current perspectives on ethical decision making in auditing and describes the process through which decisions are made under the responsibility approach. The third section provides an example of issues that might arise when the responsibility framework is used to analyze the ethical implications of an AES implementation.

Theoretical background

This section lays the theoretical groundwork for the responsibility approach to ethical dilemmas proposed in this paper. The section begins by defining expert systems and exploring past research on ethical issues associated with the use of ES in auditing. Previous research relies on a narrow interpretation of the theory of distributive justice, an ethical perspective that deals with questions surrounding the ethical distribution of rights and resources, such as audit expertise and its associated rewards. We argue that this perspective is limited and propose the use of an alternative approach for addressing AES dilemmas—Niebuhr’s responsibility-based ethics. This perspective is appropriate for AES decisions, because it is designed to address communal problems such as those associated with shared responsibility for system outcomes. Although Niebuhr provides a framework for analyzing the decision context to determine appropriate action, he does not discuss how an understanding of this context is to be gained by the decision maker. The final portion of this section describes the necessary conditions for a dialogue that allows stakeholders a voice in AES decisions.

Expert systems

Expert systems and decision support systems can be seen as extremes on a continuum representing the extent to which a system possesses reasoning capabilities (Dillard and Bricker, 1992). A