Software ergonomics guidelines and standards

by JOHN KARAT
IBM Corporation
Austin, Texas

INTRODUCTION

There are four current software ergonomics projects conducted by organizations chartered to develop national and international standards. Two projects are in the United States, one by the American National Standards Institute (ANSI) and the other by the Human Factors Society. The third is in Germany sponsored by the Deutsches Institut fur Normung (DIN), and the fourth is by a subcommittee of the International Standards Organization (ISO).

Of the four, only the DIN committee has issued a draft standard (DIN 66 234 part 8). The draft, however, has drawn intense criticism because its specifications are not easily measurable. It is not always possible to determine when a user-system interface is in compliance.

The ISO and ANSI committees are still in their formative stages. The activities of the Human-Computer Interaction (HCI) Standards Committee organized by the Human Factors Society are described in this article.

BACKGROUND

The HCI Standards Committee is working to provide a framework for the development of software guidelines and standards for human-computer interactions in a manner consistent with the professional standards of the human factors profession. It is the intention of the committee to play an active role in the development of guidelines and standards and to review and consult on the work of other standards groups.

The committee was formed in February 1985 as a task force operating under the Technical Standards Committee of the Human Factors Society. Its initial charter was to advise the Society concerning the status of existing efforts to standardize the human-computer interface and to report on the feasibility of acting as a producer of user-system interface standards.

The task force met three times in 1985. Organizations involved in developing human-computer interaction standards were identified and studied. It was decided that it was important for the Society to take an active rather than a passive role in this area. While members of the task force were skeptical about their ability to produce useful standards in a short period, there was a feeling that the skills of the Society members should provide the necessary foundation for a serious standards effort.

The task force concluded that the greatest impact would be achieved through an initial effort to develop a framework or reference model, and then to gradually add details for various areas of human-computer interaction.

CURRENT ACTIVITIES

In late 1985 the task force became a technical standards subcommittee of the Human Factors Society. During 1986 the committee created operating procedures, elected officers, established formal connections with ANSI and the ISO, produced a reference model (draft proposal) for standards activities, and began work on content areas covered in the proposal.

As stated in the committee’s reference model, its objective is to create a set of software ergonomics guidelines and standards which have the following characteristics:

1. They must have a foundation on scientific evidence, empirical data, and have been generally recognized and accepted by people knowledgeable in the area.
2. They must state the criteria for when and how they will be applied relative to the type of task, type of user, the kind of technology and the environment.
3. They must be written so that they can be consistently interpreted in a clear and unambiguous way.
4. They must provide usable guidance to interface designers and provide information that can be directly applied in tradeoff decisions during the design process.
5. They must be practical and capable of being implemented within generally available technology and cost constraints.
6. They must be useful and exist only if they serve end users by offering a solution to a known problem.
7. They must indicate a pass-fail specification so compliance can be judged. Testing criteria must be stated.
8. They must provide some quantified, measurable benefit for users.
The areas which have been identified by the committee for the creation of standards and guidelines are:

- Input devices and techniques
- Output devices and techniques
- Dialog techniques
- User guidance (e.g., help and error handling)
- Evaluation and testing


**TIMETABLE AND MEMBERSHIP**

The committee meets four times per year for two days at a time. Two of the meetings are scheduled to overlap with major conferences (The CHI conference in the Spring and the Human Factors Society Annual Meeting in the Fall). The two other meetings are scheduled approximately midway between the conferences.

Currently the committee consists of thirteen members. Most are from industry, but they do not serve as company representatives. They act as members of the human factors profession.

**REFERENCE**