

: What are key guidelines for decision support user interface design?

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An effective user interface is an important component of any type of information system, but it is especially important for systems that will be used directly by managers to support their decision making. In a decision support or business intelligence system, the user interface is sometimes called the "front-end" component. This component influences how managers will evaluate the system and hence the likelihood they will actually use the decision support capability. The user interface is what managers see when they work with the system.

The goal of user interface design is to develop screen layouts that are easy to use and that are visually attractive (cf., Galitz, 1985). Both the intended users of a system and designers need to participate actively in designing and evaluating decision support user interfaces. Let's examine the concept of a user interface.

A user interface is the set of menus, icons, commands, graphical display formats, and/or other representations that are provided by a software program to allow a user to communicate with and use the program. A graphical user interface (abbreviated GUI which is pronounced "goo ee") provides a user a "picture-oriented" way to interact with computing technology. A GUI is the most user-friendly interface for a decision support capability. User-friendly is an evaluative term for a computerized system's user interface. It indicates that users judge the interface as easy to learn, understand, and use.

An effective user interface is also important because data and graphics displayed on a computer workstation screen provide a context for human interaction and provide cues for desired actions by the user. The user formulates a response to the displayed context and takes an action. User actions pass through the interface to the program and initiate responses. A well-designed user interface can increase human processing speed, reduce errors, increase productivity and create a sense of user control. The quality of the system interface, from the user's perspective, depends upon what the user sees or senses, what the user must know to understand what is sensed, and what actions the user can and in some cases must take to obtain needed results.

Ben Shneiderman (1992) and Jakob Nielsen developed some underlying principles of design that

Page 1/3

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are applicable in most interactive systems. The following guidelines are largely based on Galitz's (1985) and Shneiderman's research and conclusions. This list is shortened from Power (2011).

1. **Keep it simple.** A simple, uncluttered user interface will be easier to understand and use. Good designs avoid unnecessary features and complexity.

2. **Strive for consistency.** This principle is the most frequently violated one, and yet is the easiest one to correct and avoid. Consistent sequences of actions should be required in similar situations; identical terminology should be used in prompts, menus, and help screens; and consistent commands should be employed throughout. Exceptions should be comprehensible and limited in number. A system should look, act, and feel the same throughout.

3. **Provide informative feedback.** For every user action, there should be some system feedback. For frequent and minor actions, the response can be modest, whereas for infrequent and major actions, the response should be more substantial.

4. **Organize sequences of actions into groups with a beginning, middle, and end.** Create powerful commands that are appropriate for the intended users. Power is a measure of the amount of work accomplished by a given instruction to a system (cf., Galitz, 1985, p. 21).

5. **Provide simple error recovery.** Design the system so the user cannot make a serious error. A user's actions should be reversible.

6. **Empower and support the user.** Managers want to feel that they are in charge of the system and that the system responds to their actions. The key is no surprises for a user. Surprises create anxiety and frustration.

7. **Reduce and manage information load.** Information load is a measure of the degree to which a user's memory is being used to process information on the display screens. Designers can reduce information load by providing graphic rather than alphanumeric displays, format displays to correspond to users' immediate information requirements, use words that are easy to understand, provide simple dialogues (cf., Galitz, 1985, p. 21).

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The user interface is a major component of all interactive information systems. It facilitates communication between a system and its users. The user interface is a critical component of a decision support or business intelligence capability that creates unique design and development problems. Managers are rarely comfortable with command line or simple menu interfaces. Sophisticated graphical interfaces can increase a manager's use of computerized decision aids and management support software.

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