1· Input in the human occurs mainly through the senses and output through the motor control of the effectors·

2· Sensory buffers

Short-term memory or working memory

Long-term memory

3·

4· Requirements , Analysis and Design , Iteration and prototyping , Implementation and Deployment

5· A Cognitive model is the designers intended mental model for the user of the system a set of ideas about how it is organized and operates·

6·

7·

8· Services include tasks such as accessing the Internet, sending a text message, or being able to get a location basically, anything the user is trying to do·

9· The grid is a handy tool for planning out interesting moments during a drag and drop interaction·

10· Placeholder targeting - Midpoint boundary - around·

11· b· · It is the information that explains why a computer system is the way it is , including its structural or architectural description and its functional or behavioral description· In this sense, design rationale does not fit squarely into the software life cycle described in this chapter as just another phase or box· Rather, design rationale relates to an activity of both reflection (doing design rationale) and documentation (creating a design rationale) that occurs throughout the entire life cycle· It is beneficial to have access to the design rationale for several For example, a graphical interface may involve a set of actions that the user can invoke by use of the mouse and the designer must decide whether to present each action as a button on the screen, which is always visible, or hide all of the actions in a menu which must be explicitly invoked before an action can be chosen· The former option

maximizes the operation visibility but the latter option takes up less screen space. It would be up to the designer to determine which criterion for evaluating the options was more important and then communicating that information in a design rationaleThere are 3 types Process-oriented design rationale Hierarchical structure to a design rationale is created. A root issue is identified which represents the main problem or question that the argument is addressing. Various positions are put forth as potential resolutions for the root issue, and these are depicted as descendants in the IBIS hierarchy directly connected to the root issue. Each position is then supported or refuted by arguments, which modify the relationship between issue and position. The hierarchy grows as secondary issues are raised which modify the root issue in some way. Each of these secondary issues is in turn expanded by positions and arguments, further sub-issues, and so on. A graphical version of IBIS has been defined by Conklin and Yakemovic called IBIS (pronounced gibbiss), which makes the structure of the design rationale more apparent visually in the form of a directed graph which can be directly edited by the creator of the design rationale. Issues, positions and arguments are nodes in the graph and the connections between them are labeled to clarify the relationship between adjacent nodes. So, for example, an issue can suggest further sub-issues, or a position can respond to an issue or an argument can support a position. The gIBIS structure can be supported by a hypertext tool to allow a designer to create and browse various parts of the design rationale Design space It can be difficult to decide the right set of criteria with which to assess the options. Another structure-oriented technique, called Decision Representation Language (DRL), developed by Lee and Lai, structures the design space in a similar fashion to QOC, though its language is somewhat larger and it has a formal semantics. The questions, options and criteria in DRL are given the names decision problem, alternatives and goals. QOC assessments are represented in DRL by a more complex language for relating goals to alternatives. The sparse language in QOC used to assess an option relative to a criterion (positive or negative assessment only) is probably insufficient, but there is a trade-off involved in adopting a more complex vocabulary which may prove too difficult to use in practice The advantage of the formal semantics of DRL is that the design rationale can be used as a computational mechanism to help manage the large volume of information. For example, DRL can track the dependencies between different decision problems, so that subsequent changes to the design rationale for one decision problem can be

automatically propagated to other dependent problems Psychological design rationale The first step in the psychological design rationale is to identify the tasks that the proposed system will address and to characterize those tasks by questions that the user tries to answer in accomplishing them. The main task the system is to support is learning how Smalltalk works. In learning about the programming environment, the programmer will perform tasks that help her answer the questions What can I do that is, what are the possible operations or functions that this programming environment allows How does it work that is, what do the various functions do How can I do this that is, once I know a particular operation I want to perform, how do I go about programming it

12. b.

13. b. The organizational issues that affect the acceptance and relevance of information and communication systems. These factors often sit outside the system as such, and may involve individuals who never use it. Cooperation or conflict The term computer-supported cooperative work (CSCW) seems to assume that groups will be acting in a cooperative manner. This is obviously true to some extent; even opposing football teams cooperate to the extent that they keep (largely) within the rules of the game, but their cooperation only goes so far. People in organizations and groups have conflicting goals, and systems that ignore this are likely to fail spectacularly. Changing power structures The identification of stakeholders will uncover information transfer and power relationships that cut across the organizational structure. Indeed, all organizations have these informal networks that support both social and functional contacts. However, the official lines of authority and information tend to flow up and down through line management. New communications media may challenge and disrupt these formal managerial structures. The physical layout of an organization often reflects the formal hierarchy An email system has no such barriers; it is as easy to chat to someone in another department as in your own. Face-to-face conversation, the manager can easily exert influence over a subordinate Technology can be an important vector of social change, but if violent reaction is to be avoided, the impact of

the technology must be assessed before it is introduced. In the short term, solutions must be carefully matched to the existing social and organizational structures. The invisible worker The ability to work and collaborate at a distance can allow functional groups to be distributed over different sites. This can take the form of cross-functional neighbourhood centers, where workers from different departments do their jobs in electronic contact with their functional colleagues. Alternatively, distributed groupware can allow the true home-based teleworker to operate on similar terms to an office-based equivalent. The ecological and economic advantages of such working practices are now becoming well established, and it seems that communications and CSCW technology can overcome many of the traditional barriers. Free rider problem. In economics, the free rider problem occurs when those who benefit from resources, goods, or ervices do not pay for them, which results in an under-provision of those goods or services. The free rider problem is the question of how to limit free riding and its negative effects in these situations. The free rider problem may occur when property rights are not clearly defined and imposed. The free rider problem is common among public goods. These are goods that have two characteristics non-excludability non-paying consumers cannot be prevented from using it and non-rivalry when you consume the good, it does not reduce the amount available to others. The potential for free riding exists when people are asked to voluntarily pay for a public good. Critical mass A critical mass is the smallest amount of fissile material needed for a sustained nuclear chain reaction. The critical mass of a fissionable material depends upon its nuclear properties (specifically, the nuclear fission cross-section), its density, its shape, its enrichment, its purity, its temperature, and its surroundings. The concept is important in nuclear weapon design. Automating processes workflow and BPR Organizations have many such processes, and workflow systems aim to automate much of the process using electronic forms, which are forwarded to the relevant person based on pre-coded rules. Some workflow systems are built using special purpose groupware, often based on a

notation for describing the desired workflow· A more radical approach to organizational processes is found in business process re-engineering (BPR)· Traditionally, organizations have been structured around functions sales, accounts, stores, manufacturing· However, the purpose of an organization can be seen in terms of key business processes· Evaluating the benefits We have seen several problems that can arise from the mismatch between information systems and organizational and social factors· The benefits from cooperative systems, especially organization-wide systems such as email or electronic conferencing, are in terms of job satisfaction or more fluid information flow· The benefits are difficult to quantify, but, over time, it has become clear that the competitive edge of information technology is necessary for survival in the modern world·

14· b· ·

15· b· 6 principles for Designing Rich Web Experiences Make it right Allow input wherever you have output Shorten the length of interaction Make objects directly actionable Keep it lightweight Stay on the page Offer an invitation Show transitions React immediately Good example of inline editings are discoverability, complex editing and blending modes· Group editing is based on symmetry of interaction and discoverability vs readability· Overlays Dialog overlay Detail overlay Input overlay

16· b· One possible GOMS description of the goal hierarchy for this task is given below· Answers will vary depending on assumptions about the photocopier used as the model for the exercise· In this example, we will assume that the article is to be copied one page at a time and that a cover over the imaging surface of the copier has to be in place before the actual copy can be made· GOAL PHOTOCOPY-PAPER · GOAL LOCATE-ARTICLE · GOAL PHOTOCOPY-PAGE repeat until no more pages · · GOAL ORIENT-PAGE · · · OPEN-COVER · · · SELECT-PAGE · · · POSITION-PAGE · · · CLOSE-COVER · · GOAL PRESS-COPY-BUTTON · · GOAL VERIFY-COPY · · · LOCATE-OUT-TRAY · · · EXAMINE-COPY · GOAL COLLECT-COPY · · LOCATE-OUT-TRAY · · REMOVE-COPY (outer goal satisfied!) · GOAL RETRIEVE-JOURNAL · · OPEN-COVER · · REMOVE-JOURNAL · · CLOSE-COVER The closure problem

which appears in this example occurs when the copy of the article is removed from the photocopier out tray, satisfying the overall goal for the task. In the above description, however, the original journal article is still on the imaging surface of the photocopier, and the cover is closed. The user could easily forget to remove the journal. How could the photocopying procedure be revised to eliminate this problem One answer is to force the goal RETRIEVE-JOURNAL to be satisfied before COLLECT-COPY.