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Answer Garden and the Organization of Expertise

Mark S. Ackerman

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Abstract

Answer Garden facilitates the building of an organizational memory for commonly asked questions and their answers. The system includes an easy-to-use set of information retrieval engines, including a branching network of diagnostic questions. If the answer to the user's need is not present in the database, the system automatically routes the question to the appropriate human expert, and the answer is returned to the user as well as inserted into the branching network and database.

This research paper postulates that the major organizational and social innovations with Answer Garden include changing the information seeking behavior in an organization, building an organizational memory, and allowing firms to better coordinate and manage their intellectual assets. In addition, this paper presents a brief summary of the technical architecture. This paper supplements, and does not replace, working paper 108.

Answer Garden

Expertise is everywhere in a company. Each person has his or her own areas of skill and knowledge. But few companies can effectively and efficiently manage this critical resource.

Answer Garden is both a technical artifact (i.e., a particular system) and a proposed solution to a set of organizational problems. Answer Garden is interesting, I will argue, because it touches (and offers one possible solution in the space of) the organizational issues of finding the right expert, growing organizational knowledge and memory, and managing the intellectual property of the firm. These organizational issues are recently attracting new attention, especially with the imminent "wiring" of most corporations, and they could well be critical factors for firms in the next years (Stewart 1991).

This paper discusses Answer Garden as a technological artifact and in terms of its potential effects.[1] I will present Answer Garden as technological artifact first, largely because that will ground the rest of my presentation. The arguments for why Answer Garden is interesting (and that it should be studied) follow.

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[1]These potential effects are currently being investigated in two field studies of Answer Garden. However, the results are not yet available.

1: What is Answer Garden?

Let me start the description of Answer Garden by offering a few common organizational situations:

- You have just travelled to a foreign country. Dimly you remember that the form to fill out for reimbursement is different. What form should you fill out?
- You cannot get your MIS-approved word processor to wrap text in 2 columns below a banner graphic. Where do you find the answer to your specific problem?
- You are working on a proposal for your consulting company. You suspect you are not the only person who has done this type of proposal in your company. How do you find the other people that have relevant expertise?

All of these situations have some common attributes: They are all situations where there is a commonly asked question. They require pointers to information. The pointers may be to people or to data and text, but they are all pointers that the information seeker does not have. Moreover, the questions as a whole are unpredictable and new to each individual, but to the organization, they are repetitious. Finally, they are all situations that are dynamic; the information can change or be modified rapidly.

Answer Garden addresses this type of organizational problem.

Sample implementation

Answer Garden (Ackerman and Malone 1990) has been implemented in C, the X Window System, and Unix.[2] It currently runs on a wide variety of hardware platforms. The

[2]There is another implementation of Answer Garden done in Object Lens by Kum-Yew Lai. Answer Garden databases in Object Lens concern Object Lens itself and its file server. The Object Lens version is based on and generally follows this implementation. There was also an earlier Hypercard prototype.

sample database that will be described below is about how to use the X Window System itself.[3]

Answer Garden utilizes some standard technologies in a new and integrated manner. I have not been able to find systems like Answer Garden in the literature, although clearly there are precedents (e.g., from hypermedia, Conklin 1987, Walker 1987, Weyer and Borning 1985, Campagnoni and Ehrlich 1989, Marchionini and Shneiderman 1988; from communication systems, Hiltz and Turoff 1981, Raeburn et al. 1989; from help systems, Coppeto, Anderson, and Geer 1989; and from information retrieval systems, Salton 1989, Dumais et al. 1988, Egan et al. 1989).

The end-user starts Answer Garden when he has a problem. Running on a normal X workstation (such as a Sun or DECstation), the user begins his session with a screen that looks like Figure 1 (following page). As Answer Garden starts up, he is presented with a simple Control panel that offers him two selections.

If he chooses the "Ask Questions", Answer Garden lays out a series of question nodes in order to diagnosis what the user needs. It is similar to the system playing the game "Twenty Questions." The user traverses the question nodes, selecting the appropriate button with his mouse. Figure 2 shows the screen after the user has selected several questions. In this case, the user is interested in finding out something about the packages that the site supports.

The X Window System is a de facto standard for Unix workstations. It was developed at MIT, and is "owned" by the MIT X Consortium. The MIT X Consortium, while headquartered at the Laboratory for Computer Science, is an industry consortium.

[3]There is an additional information database about an x-ray astronomy application available (and several other information databases under consideration).

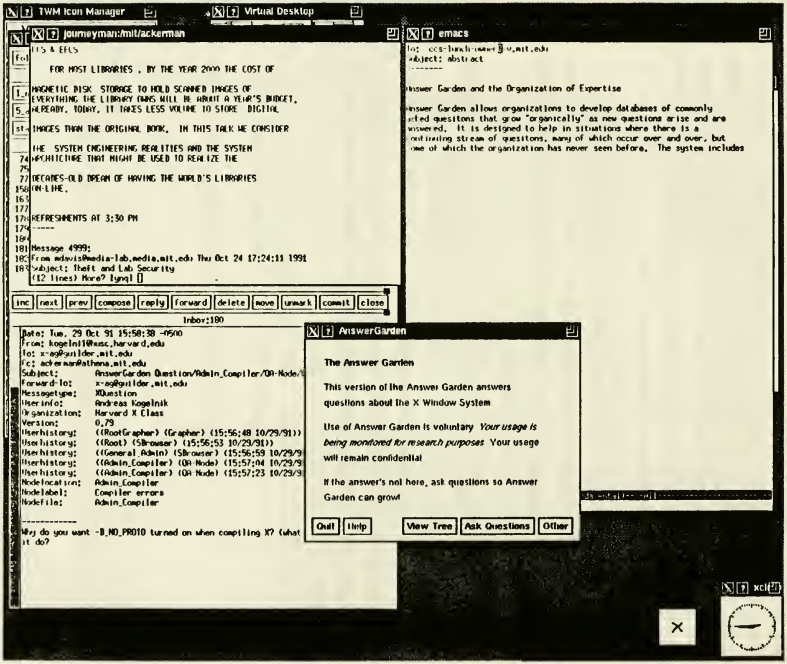
TWM Icon Manager
Virtual Desktop
journeyman:/mit/ackerman
emacs
AnswerGarden
The Answer Garden
This version of the Answer Garden answers questions about the X Window System
Use of Answer Garden is voluntary. Your usage is being monitored for research purposes. Your usage will remain confidential
If the answer's not here, ask questions so Answer Garden can grow!
Quit
Help
View Tree
Ask Questions
Other
xclock

Figure 1

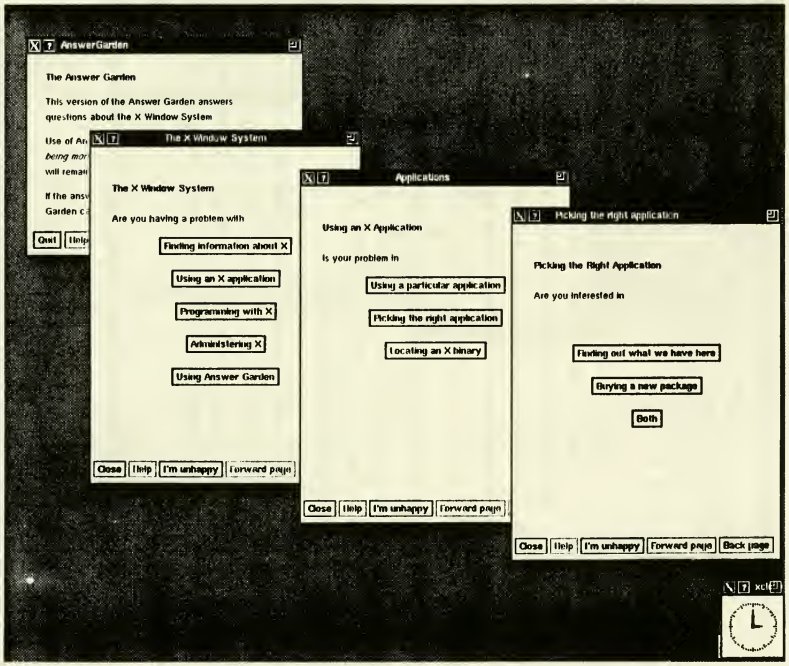
AnswerGarden
The Answer Garden
This version of the Answer Garden answers
questions about the X Window System
Quit
The X Window System
The X Window System
Are you having a problem with
Finding information about X
Using an X application
Programming with X
Administering X
Using Answer Garden
Close
Help
I'm unhappy
Forward page
Applications
Using an X Application
Is your problem in
Using a particular application
Picking the right application
Locating an X binary
Close
Help
I'm unhappy
Forward page
Picking the right application
Picking the Right Application
Are you interested in
Finding out what we have here
Buying a new package
Both
Close
Help
I'm unhappy
Forward page
Back page
xclock

Figure 2

Computer-sophisticated users can also select the "View Tree" option, and Answer Garden provides the user with a tree of the possible branches.[4] The "..." indicator in some tree items indicates there is a subtree as well. Figure 3 shows a situation where the user has selected the Answer Garden tree, and then selected a specific answer. (It is the same answer he would have selected from the diagnostic question series.) Answers can either be specific pieces of information (as in Figure 3), or they can be more general groupings of opinions, tutorials, and code examples (for this database). In addition, there is a method for the expert to gather whole collections of questions and answers in one node as a way of doing diagnostic pre-structuring.

If the user does not understand a question or cannot find the answer to his question, he can select the "I'm Unhappy" button from any node. This pops up a mailer (Figure 4). The user then asks his question. Notice that the node expert is anonymous for the user. The header for the electronic mail message is replaced before being sent with the electronic mail address for the correct expert or set of experts, a user history so the expert can determine where the user has been and seen, as well as other, miscellaneous information.

Once the user has asked a question, the question is routed to the appropriate human expert. The human expert can answer the question for the user, and if it is a commonly asked question, he can also insert the answer in the information database. As well, the expert can add any diagnostic questions that he feels might be necessary.

Answer Garden thus provides a mechanism for growing a body of information. (Hence the name.) Both experts and users perform their normal duties. Users must browse the Answer Garden database before asking a question, but in turn, they get to find the correct expert. Experts must structure the database, but in turn they get to rid themselves of commonly asked questions.

A brief description of the internal architecture of Answer Garden is given in Appendix A.

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[4]The nodes are actually laid out in a network, but the network is projected into a tree for the convenience of the user. To be more precise, the network is a directed, non-cyclical graph. There is no internal requirement that the graph be non-cyclical. Nonetheless, diagnostic questions should not be cyclical, and one of the authoring suite packages (to be described below) searches for cyclicality.

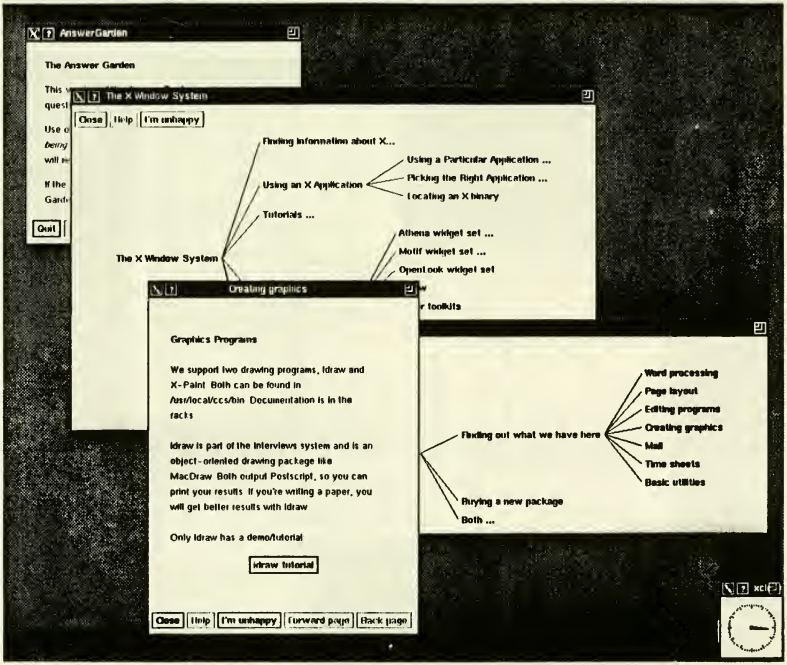
AnswerGarden
The Answer Garden
The X Window System
Close
Help
I'm unhappy
Finding information about X...
Using an X Application
Using a Particular Application ...
Picking the Right Application ...
Locating an X binary
Tutorials ...
The X Window System
Athena widget set ...
Motif widget set ...
OpenLook widget set
Creating graphics
Graphics Programs
We support two drawing programs, idraw and X-Paint. Both can be found in /usr/local/ccs/bin. Documentation is in the racks.
Idraw is part of the Interviews system and is an object-oriented drawing package like MacDraw. Both output Postscript, so you can print your results. If you're writing a paper, you will get better results with Idraw.
Only Idraw has a demo/tutorial.
idraw tutorial
Close
Help
I'm unhappy
Forward page
Back page
Finding out what we have here
Word processing
Page layout
Editing programs
Creating graphics
Mail
Time sheets
Basic utilities
Buying a new package
Both ...
xcl

Figure 3

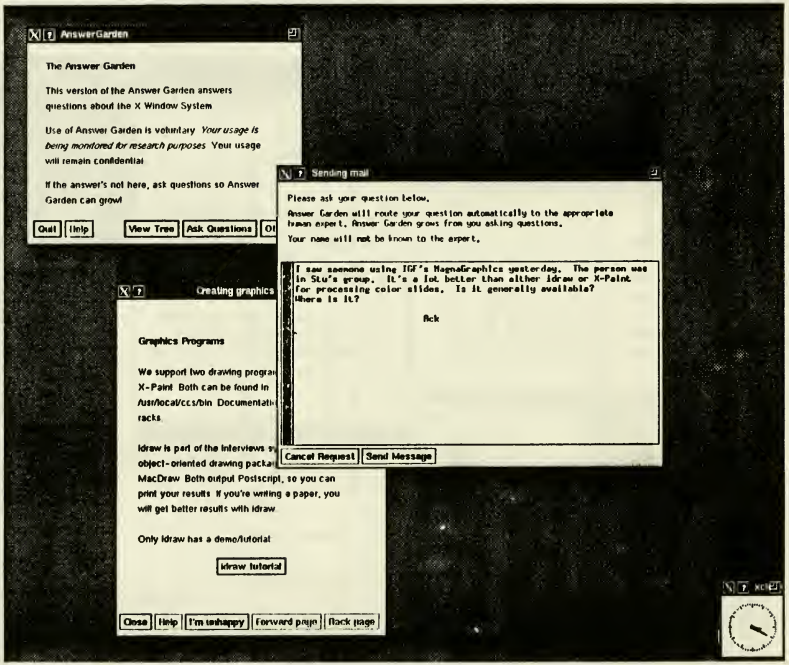
AnswerGarden
The Answer Garden
This version of the Answer Garden answers questions about the X Window System.
Use of Answer Garden is voluntary. Your usage is being monitored for research purposes. Your usage will remain confidential.
If the answer's not here, ask questions so Answer Garden can grow!
Quit
Help
View Tree
Ask Questions
Sending mail
Please ask your question below.
Answer Garden will route your question automatically to the appropriate human expert. Answer Garden grows from you asking questions.
Your name will not be known to the expert.
I saw someone using IGF's MagnaGraphics yesterday. The person was in Stu's group. It's a lot better than either idraw or X-Paint for processing color slides. Is it generally available? Where is it?
Rick
Cancel Request
Send Message
Creating graphics
Graphics Programs
We support two drawing progra
X-Paint. Both can be found in
/usr/local/ccs/bin. Documentati
racks.
Idraw is part of the interviews p
object-oriented drawing packa
MacDraw. Both output Postscript, so you can print your results. If you're writing a paper, you will get better results with idraw.
Only idraw has a demo/tutorial.
idraw tutorial
Close
Help
I'm unhappy
Forward page
Back page

Figure 4

2: Why should anyone be interested in Answer Garden?

In and of itself, Answer Garden appears to be a valuable new technology for many situations, and it carries interest for several technology research areas. It proposes solutions for the hypertext publishing problem (Drexler 1988) and the hypertext navigation and location problems (Utting and Yankelovich 1989, Marshall and Irish 1989, Hammond and Allinson 1988). The technology suggests a method of dealing with updating and error in any information system, especially a full-text or semi-structured database. In addition, it offers an examination of distributed authoring and publishing.

In addition, Answer Garden can be viewed as an experimental apparatus for examining some important organizational and social research areas. Answer Garden, as either a CSCW or an IT system, will be used in a social environment. Answer Garden, in this sense, is a tool by which to examine the present sociology of an organization and its information environment, as well as some organizational possibilities. In this sense, Answer Garden offers possibilities for a combination of social and technical research.

I have previously described one possibility for social-technical research, namely, how experts and users might interact:

- Answer Garden might change the coordination of the interaction between expert and information seeker. As mentioned, the users must browse a database, but can find the right person of which to ask their question. The experts must structure the information database, but they can get rid of commonly asked questions.

This issue is the interaction between the individual user, the expert, and the technology. Another social-technical research theme concerns itself with the interaction between the technology and the organization:

- Answer Garden might provide the ability to easily build an organizational repository of information. One term for such a repository is an organizational memory.

In addition, there is one other interaction between the technology and the organization. In this case, Answer Garden serves not only as a potential solution but also as a mechanism for examining what I believe is an understudied area of research:

- It might better tie together the intellectual assets of the company. That is, it might enable people to more easily find the human expertise of the organization (as well as the components of any organizational memory).

I will deal with each of these research themes in turn.

Expert-Seeker Interaction

Answer Garden is an attempt to augment the interaction between the information seeker and the human experts in an organization. I stress the augmentation in opposition to a possible mechanizing system such as (Gwei and Foxley 1990). Answer Garden does not attempt to replace the human expert in the information channel; instead, it attempts to facilitate his effective use by the organization.

In order to understand that use, we must first ask ourselves what the interaction between the expert and the information seeker is. The information seeking research literature is quite large. (See Allen 1969, Crawford 1978, Dervin and Nilan 1986, and Hewins 1990 for partial reviews.) I will not attempt to survey the large number of information retrieval system studies and of general population studies, instead focussing on those studies of engineers' information seeking behavior. These studies, particularly those by Allen, are among the most detailed examination of information seeking in particular settings.

Among his many findings, Allen (Allen 1977) noted that engineers' major source of information was direct contact and communication with colleagues. His finding of the impact of gatekeepers, engineers who maintained contacts outside the group, on performance is well known. Additionally, he found that engineers seldom used the formal literature, although the informal literature (trade magazines and the like) were used extensively. For these two reasons, information retrieval systems, which usually facilitate dissemination of the formal literature, held little promise in Allen's opinion.

Gerstberger (Gerstberger and Allen 1968), also reported in (Allen 1977) noted some of the reasons why engineers would *not* go to colleagues, and instead use other information channels. Gerstenfeld in his study of 19 engineers found that they chose not to go the channel of the highest quality for technical information, but rather to go to the channel of highest accessibility (i.e., lowest psychological cost). Allen argued that the psychological cost was in the status implications of admitting ignorance and of lack of reciprocity.

Some of my work with software engineers extends this. Based on interviews with 28 software engineers, information seeking is done in a highly charged social environment. Information seekers, like most people, prefer going to people who will be friendly - either because they are trusted or just because they are personable individuals. They are acutely aware of the status trade-offs involved in such an information-seeking session. Asking questions about a new area is not unlike asking questions upon entry into the organization (Miller and Jablin 1991); it is felt to be dangerous to appear "stupid." Asking questions about an area that you are supposed to know can be more fraught with subjective danger. Furthermore, information seekers are also quite aware of the skill levels of potential answers. They do not view the interaction as a novice-expert interaction where any expert can be substituted for any other expert. Instead, they are aware that various individuals have different expertise, and a particular range of expertise at that. These points are more important in later sections, and I will return to them.

In another direction, studies of the expert-novice interaction by CHI researchers focussed largely on adviser-advisee situations, demonstrating the complexity of the expert-seeker interaction. For example, Pollack (Pollack 1985) studied 13 users (16 email dialogues) seeking information about a mail system. She found that the user-expert interaction did not simply provide answers. For example, in one situation, the side effect of the query was to have the expert move old messages to an archive file so the program would load faster. In 50% of the dialogues, the user did not understand the nature of his question, and the expert was forced to supply alternatives, infer the correct question, or ask for additional information. Carroll and Aaronson (Aaronson and Carroll 1987a, Aaronson and Carroll 1987b, Aaronson and Carroll 1987c, Carroll and McKendree 1987) found similar results.

What can we learn from all of these studies to design systems that help advice seekers? The most important point is perhaps that a technological system to replace all the abilities of human experts would be quite difficult. Second, a technological system should try to reduce some of the difficulties of the human communication system, perhaps by easing the ability to find the right expert to ask, by reducing the status implications of asking a question, or by enabling the archiving of common materials.

Answer Garden can change the expert-seeker interaction. One of the more interesting questions is to what extent users will substitute Answer Garden for other information channels. From the research, I expect two possibilities. The first is that Answer Garden could be used more extensively when there are not colleagues to ask. In other words, an

engineer will be willing to go to a computer-based information source when there are not the usual information channels. This may be more likely when the subject area is a frontier area; that is, one that is too new to be well-known, or when the person is geographically or otherwise information isolated.

The second possibility, however, includes the subjective nature of the expert-seeker interaction. Answer Garden may be of great use when the information seeker is afraid to ask a question for fear of losing substantial status. For an engineer, this might involve a question suitable to a beginner in the field. I believe that Answer Garden will be used more when the question is naive, beginning, or felt to be labelled "stupid."

Interestingly, the motivations for the two possibilities mentioned above are quite different. According to the former, a user might want to use Answer Garden because there is no one around; according to the latter, a user might want to use a system such as Answer Garden because there are *too* many experts around. It is not clear how this will be played out by the research subjects.

Organizational Knowledge and Organizational Memory

> A good proportion of the truly important information ...is, however, published within the organization, and, for this reason, the informal documentation system of his parent organization is an extremely important source of information for the engineer. (Allen, p. 41)

The result of organizational learning is some form of organizational knowledge. Organizational knowledge has been defined as supra-individual knowledge (Walsh 1989), and includes and surpasses the knowledge of individuals in that organization (Pentland 1991). As such, information seeking can be considered as the process of finding the right organizational knowledge.

Various attempts have been made to extract the knowledge from an organization into computer or archival media. This stored or archived organizational knowledge has also been termed organizational memory. Yates (Yates 1988, Yates 1990) describes several forms of this, for example the written memo stored in vertical files. Walsh and Ungson (Walsh and Ungson 1991) argue for a 5 level store of organizational knowledge as organizational memory.

To some extent, both organizational knowledge and organizational memory serve best as metaphors. There is, within organizations, a problem of capturing information and storing it. Data processing systems do this for accounting information. What Finholt (Finholt 1990) terms formal communications is captured in documentation.

Answer Garden addresses three issues of organizational memory. First, it is often the case that informal information is important. Members need to understand procedural knowledge and work-arounds. Second, the information in archival forms, such as documentation, is often wrong, and there are few ways to correct them or even to communicate the need for their correction. Third, it is difficult to get organizational members to formulate large amounts of information, which leaves most organizational knowledge unwritten.

Answer Garden should ameliorate these problems. I expect to find that use of the Answer Garden will result in the development of an information database adequate for finding solutions to commonly asked questions. This may seem a tautology, considering the design of Answer Garden. However, if it is not easy to build an information database in the Answer Garden or if there are insufficient motivations to do so, then the system will not grow.

In addition, the Answer Garden information database should grow iteratively, as users ask questions about answers that are incomplete or nonexistent. Answer Garden's most interesting feature is the design assumption that the information database should have the capability of growing over time. I expect this feature to be utilized; however, other possibilities exist. For example, experts may choose to grow the database independently of questions. Or, information seekers might look at only the pre-existing information, and not ask questions. (One interesting preliminary finding is that people seem to need a certain size "seed" database in order to feel as though someone will answer their question.)

Both of these problems exist in hypertext publishing. The hypertext community has debated the required incentives for building a large corpus of information (the hypertext publishing problem). In addition, hypertext databases (as well as most other information databases, including full-text) suffer from not having an easy way to correct their information.

Expertise Networks

In many situations, a new technology provides an opportunity for taking a new look at existing situations and allows one to see old phenomena in new ways. As Hutchins writes: "Many instances of 'Aha!' insight occur when a problem expressed in one way is re-represented in another.... (Hutchins 1990, p. 199)" What I will argue below is that Answer Garden provides such an opportunity, and the phenomenon in question is the communications network of the organization.

Another way to view Answer Garden is in terms of *organizational expertise*. Examining organizational expertise assumes that organizational knowledge is embedded in the organization's agents, either human or computerized. Of particular interest here are the human agents, the people in the organization. Each person has his own capabilities, both in subject matters and in skill levels. As such, the organizational access problem becomes one of finding the right agent, probably human but possibly computer, through the communications network of the organization. Organizational expertise is a YAOM[5], an extension of the distributed computing metaphor (Cammarata, McArthur, and Steeb 1988, Lesser and Erman 1988).

In this view, to borrow Weick's (Weick 1979) terminology, expertise is enacted through the double interacts of information seeker and information source. Cicourel (Cicourel 1990) found a similar enactment pattern with medical personnel. This enacted meaning, partially historical and partially situational, enables both parties to suggest, defend, and develop expertise.

For example, one interaction pattern has remained remarkably stable across organizations studied (and even technical topics). This is the "one-upmanship" conversation among R&D software engineers similar to that described by Anderson (Anderson 1978) in his urban ethnography. An engineer might make a technical assertion, and other engineers might follow with factual or design challenges. Status, and thus recognition as an expert (or relative expert), is garnered by the initial participant's ability to counter those challenges. The discussion can become quite technical and elaborate, and further status is enabled through sophisticated claims and counterclaims. Topics, in fact, can shift over several

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[5]Yet Another Organizational Metaphor.

hours, as participants essentially argue over their status positions. A person is allowed to be an expert by the willing agreement of her colleagues and according to her actions.

It is my argument that organizational expertise is affected not only by the knowledge domains and skill levels of the organization's agents, but also the social *sub*networks within the organization. As a useful abstraction, consider an agent's expertise as a multi-dimensional cluster of skills. Then the firm's expertise is a multi-dimensional network made of these agents. This *expertise network* is the firm's manner of organizing its expertise. In "absolute" terms, the complete expertise network is the sum total of all possible skills in the firm. It is what the firm could do, if it knew what all its members could do. The "actual" expertise network is dependent on the communications network within the organization. Indeed, it is dependent on communications *sub*networks, ones revolving around particular subjects of interest, expertise, and social contacts. Even though two agents might have sufficient knowledge between them to solve a problem, if they cannot talk - because they don't know each other, they have no communications network between them, or because they can't stand to be in the same room with each other - the organization cannot be said to have the capacity to solve the problem.

The expertise network is an indication of the firm's *organization of expertise*, how a firm arranges its personnel and computer information resources in such a way as to maximize such critical success factors as efficiency, innovation, or expertise sharing (Rockart and Short 1989). It may be argued that altering the organization of expertise within the firm, through different types of management or through technological systems (such as Answer Garden), may alter the firm's abilities and ultimately performance (Galbraith 1973).

Answer Garden was designed to alter and to augment the expertise network within an organization. Not only may information seekers use Answer Garden to find expert information, Answer Garden can be used to find the experts themselves. No longer need the information seeker chain through innumerable social and professional contacts until he finds an expert. Answer Garden should allow end-users to find an expert for their problem more easily. In an environment that requires coordination of knowledge and expertise in order to compete, finding a right person without delay may be critical.

Summary

In his cover article in Fortune, Stewart could have been writing about the design premises behind Answer Garden:

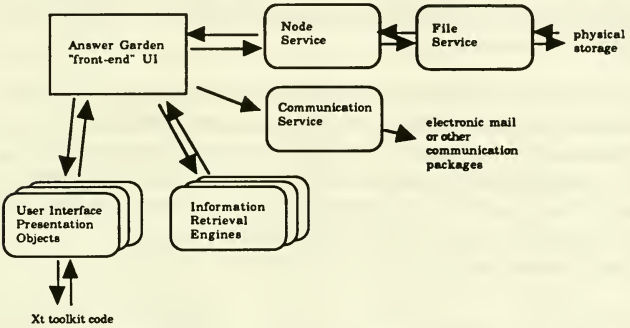
> Every company depends increasingly on knowledge - patents, processes, management skills, technologies, information about customers and suppliers, and old-fashioned experience. Added together, this knowledge is intellectual capital. ...In other words, it's the sum of everything everybody in your company knows that gives you a competitive edge in the marketplace.
>
> Such collective knowledge is hard to identify and harder still to deploy effectively. But once you find it and exploit it, you win. (Stewart 1991, p. 44)

I have designed and built Answer Garden as both a technological artifact to augment the organization's expertise and as an experimental apparatus for investigating this information environment.

Appendix A: Answer Garden Architecture

In the following description, two versions of Answer Garden are to be distinguished. There is a version that will be employed in the user study. This version will be sent out on the MIT X11 release 5 "Contrib" tape. Additionally, there will be a release version that will incorporate any changes found to be necessary from the field study, as well as some additional components.

Internally, Answer Garden looks like a collection of separate services held together by a common core:



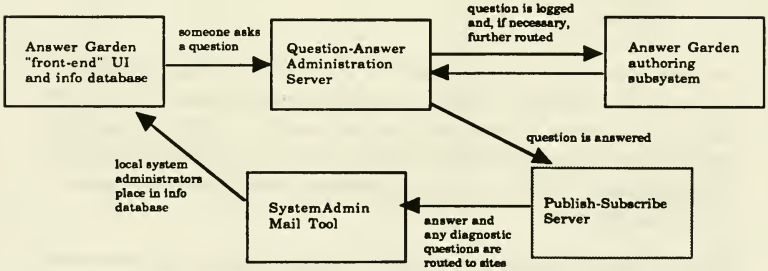
In Answer Garden, links are stored symbolically in the information nodes. The links are resolved at run-time through the Node Service, which in turn relies on the File Service for access to actual storage. All data is kept in Ascii for portability. A flat file implementation of the File Service is being provided; it is possible to implement a File Service using a fully relational database. Each site has a separate information database, both for convenience and for local tailorability.

In terms of what the user sees, Answer Garden is a support mechanism for a wide variety of user interface presentations, information retrieval engines, and communication mechanisms. There are several built-in presentation objects, including Structured Browser nodes for questions and for structured text layout, Discussion nodes for collections of electronic mail, QA nodes to handle large numbers of questions and answers as well as bug reports and enhancement announcements, and Code nodes for software examples. Each

has anywhere from a slightly to a radically different interface presentation. The design of Answer Garden is such that sites requiring additional presentation styles or separate objects can easily add their own (each in what is called a Sorta-Object).

In addition, Answer Garden supports (or can support) a wide variety of information retrieval engines. The diagnostic questions, shown above, can be thought of a retrieval engine for computer-sophisticated, but domain-naive end-users. There is some evidence that properly structured questions may ease the burden on naive users of formulating proper queries (Sebrechts and Swartz 1991). Other engines include keyword retrieval and semi-structured retrievals. As well, Answer Garden supports the use of a variety of communication engines. Answer Garden currently supports two standard Unix electronic mail packages, but interfaces to MIT's Zephyr synchronous communication package, voice mail, and video links are planned.[6]

The portion of the software shown above is actually just the interface presented to the end-user. Usually, this "front-end" is called the Answer Garden. More properly, there are actually five components. The "front-end" interface is combined with an authoring subsystem. People authoring new information nodes do so in the context of the Answer Garden itself. There are (or will be) also some additional authoring tools, which in the Unix style are stand-alone programs, to test for dangling references and node completeness, to build the grapher trees, and to check for pruning requirements.



[6]Only keyword retrieval and standard Unix mail packages are being supported for the user study version.

In a production system, a publish-subscribe server and a question-answer tracking server would be required. Assuming a centralized service, user sites who wished new information would "subscribe" to Answer Garden answers. They would want to do so by Answer Garden subtree since there will be many subtrees that are not of interest to all sites. As experts authored new information, they would send the answers (and any accompanying diagnostic questions) to this centralized service. The service would, then, in turn "publish" the answers to the subscribers. The question-answer tracking server would log in-coming questions, lock questions for individual experts, and make sure that each question is answered. It is to employ a hand-shaking protocol similar to that of TCP-IP but implemented through electronic mail. A prototype of the latter server is being implemented for the user study in Object Lens. A prototype of the publish-subscribe server will be built for the release version; there is no need for it in the user study.

On the end-user site side, a simple program to show any incoming Answer Garden answers is required. Many sites will not permit incoming files to be placed in their file system without the ability to manually override. Of particular concern is that Answer Garden answers contain code examples; this raises the security hackles of site administrators.

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