# Searching for Expertise

**Kate Ehrlich**
IBM T.J. Watson Research Center
One Rogers St., Cambridge, MA 02142, USA
katee@us.ibm.com

**N. Sadat Shami**
Information Science Program, Cornell University
301 College Ave., Ithaca, NY 14850, USA
sadat@cornell.edu

**ABSTRACT**
It is well established that there is a need to find experts to get answers or advice. A variety of expertise locator tools have emerged to help locate the right person. But there is little systematic study on what people are really looking for when such systems are used and how external factors such as job role may shape that search. We conducted a study of 75 employees who were current users of an expertise locator system. An analysis of the reasons for their search revealed that people in client facing roles are primarily seeking to have a dialog with an expert, while others are just as likely to seek answers to technical questions. We also surveyed various tools for finding experts and found that corporate directories and personal networks were most often cited as alternatives to an expertise locator. We discuss the implications of these results for the design of tools for finding experts and expert knowledge.

**ACM Categories and Subject Descriptors**
H5.0. Information interfaces and presentation (e.g. HCI): General

**General Terms**
Experimentation, Design.

**Authors Keywords**
Expertise search, expertise locator tools, personal networks

**INTRODUCTION**
When looking for expert knowledge, we usually turn to people we know for reliable, quick information or recommendations [1, 10]. However, personal networks are sometimes not sufficiently diverse to identify all the right people [4]. Fortunately, a range of software tools are emerging to help locate experts. Some people use lightweight tools to send a broadcast message to a community, a mailing list, a forum or any group of people. This method lets the searcher cast a wide net with the expectation that someone knowledgeable will take the time to answer [2, 11]. Broadcast messaging is good for technical questions that can be answered in one step with a single answer or with multiple plausible answers. Another way to find experts is with specialized expertise locator tools that have been designed to search for experts based on skills or general search terms [3, 4, 6-8]. People also use general purpose tools such as directories [5], intranets or social software systems [9] to locate experts. The availability and use of such a wide range of tools raises the question of what people are actually looking for and how well the existing set of tools meet their needs. Knowing the reasons people look for experts can provide insights into better design of tools to support expertise searches. However, as yet, there is little systematic research that examines the reasons for a search or the selection of tools [8, 12].

This paper reports the results of an empirical study that examined what people are searching for when they are looking for experts, the range of tools they are using, and how these tools are perceived. Because expertise search can depend on task, we examined how job role, as proxy for task differences, influenced search. In particular it has been noted that people in client-facing roles such as those in sales and consulting have a strong and immediate need for answers from experts [4]. We conclude by discussing implications for the design of tools to help find experts.

**STUDY**
Our study was designed to investigate what people look for when they are searching for experts. We based the study on searches using SmallBlue (released as Atlas™), a new expertise locator system [4, 6], reasoning that people who used SmallBlue had demonstrated a need to find an expert by using the tool.

We initially looked at a log of search terms entered into the expertise locator. But we quickly realized that the search terms we found such as, "Java", "CRM", "outsourcing", "security", "finance", "market intelligence" were too decontextualized to interpret. At that point we modified the study to gather information about searches through semi-structured phone interviews.


*CHI 2008*, April 5–10, 2008, Florence, Italy.

### Participants

The participants in the study were 75 full time employees located in 21 different countries of a global information technology services company, who had performed at least 20 searches using SmallBlue. The majority of participants were from the United States. Slightly over half (58%) identified themselves as client-facing, that is, in a role that put them in touch with external customers.

### Task

In the interview, each participant was asked to recall any recent need to find an expert. We did not specify what tool they used to find the person. After they provided the search term, we asked them to describe the circumstances behind their search and the importance of finding the right person to contact, on a scale of 1 to 9 where 1 was not important at all and 9 was extremely important. Most people only provided a single search term but some offered two. We analyzed each term separately. At the end of the interview session, each participant was asked what they would have used if SmallBlue was not available to them. This was a free form question. Each interview was recorded with the permission of the participant.

### Types of Search

The principal data of interest were the reasons behind a search. Previous research [12] identified 2 motives for seeking an expert: as a source of information and as someone who can perform a given social or organizational function. We derived our data by transcribing the answers from the audio files and then assigning the responses into the categories described below which were arrived at after first examining the responses. The authors categorized the set of responses independently. Intercoder reliability using Cohen's Kappa was 0.84 ($p < 0.001$). Disagreements were resolved by discussion.

*Answers*

We defined this as: **Getting an answer to a specific question where the answer is more important than who answers it and does not require 2-way discussion.**

- Example search term: **camtasia**. *"I had a request from a practitioner to find out how to record using Camtasia. I needed to find instructions rather than people".*

*Person*

We defined this as: **Finding a person with specific skills where some discussion is required.**

- Example search term: **ruby programming**. "*I had to deploy a ruby application for a client in Japan and did not have experience with Ruby. I wanted to find someone that had experience with Ruby".*

In addition there were several responses that did not fit into either of these traditional categories. We added two categories of *Awareness* and *Provide Information* to accommodate these additional search types.

*Awareness*

We defined this as: **Developing knowledge or awareness of a topic - neither the topic nor the person is specific.**

- Example search term: **health medical records**. "*Health medical records is my primary work. I'm quite isolated in a rather small country and I like to look up colleagues in other countries".*

*Provide information*

We defined this as: **Seeker has information that might be valuable and wants to find the person that could use it.**

- Example search term: **workforce and mining industry.** "*I came back from Australia where I met with 10 mining companies around their workforce issues. I wanted to know who else might need to know about that".*

Although only a few cases fell into this latter category, it was intriguing to consider that there may be a need to find people to pass information rather than seek information. Most tools are not designed with this purpose in mind.

## RESULTS

### Search

We obtained a total of 78 search terms and reasons from our 75 participants. The majority of searches were coded as searching for people (58%) followed by searching for answers (24%) then awareness (15%) and just a couple of examples of providing information (3%).

We examined whether the type of search varied by the seeker's job role. Figure 1 shows the frequency of search type by role. Chi-square analysis indicated an interaction between search type and role (*Pearson chi-square* = 6.94, $df = 2$, $p = 0.07$). An analysis with the infrequent responses (provide information) removed did not change the results. Given our small sample size, we take these results to provide some support for the notion that task, as measured by job role, influences the reason for an expertise search. Those in a client-facing role need information rapidly and so often turn to their personal network. One person said,

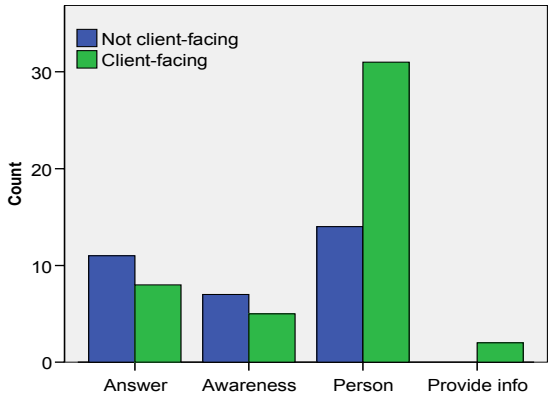


**Figure 1. Reasons for search as a function of job role**

"*Just yesterday somebody comes to me and says 'Frank, we have an issue with Racken software and we in Australia don't know who to contact'. … I contact Ed my contact in the US and he said 'sure I'll talk to them*"'. Part of the value of SmallBlue was that it provided the names of intermediaries and people in common with the target *"…it wouldn't be too much of a cold call to say hi, I understand you know my colleague so and so, I'm calling you about this other topic. I guess it would make me feel more comfortable knowing that I could sort of name drop."* Another participant said, *"If Sam calls me up and says 'Hey I've got this buddy of mine that needs a few minutes of your time', I would do it. The name recognition helps. If the expertise locator can help me find out whose name then it's a very useful tool."*

We also asked participants to rate the importance of finding the right person, on a scale of 1 to 9, where 1 was not important at all and 9 was extremely important. The average importance rating was (8.33) for finding people, (7.74) for getting answers and (7.17) for awareness. An ANOVA on the ratings indicated that the differences were significant ($F_{3,75} = 3.20$, $p < 0.05$). Due to the very small number of cases, we did not include the category of "provide information" in this analysis.

### Tools to search for people

The participants in this study were fortunate to operate in an environment in which they had access to directories, email, wikis, blogs and social bookmarking tools in addition to SmallBlue. At the end of the interview we asked people to say what tool they would use to find people if SmallBlue was not available. We received a total of 110 responses from the 75 people. We categorized their choices into the groups shown in Table 1. There was no interaction between tool and role (*Pearson chi-square* = 7.87, *df* = 6, $p > 0.10$). The corporate directory had been in use in the company for many years and was the default method for finding people. Nevertheless, there were several instances when people would turn to other methods. The comments we received sheds some light on the perceived advantages and disadvantages of the different tools.

We note here that expertise search is about finding the most suitable person rather than the most competent [4]. As one person said, "*I assume there are multiple experts out there in varying degrees and I might not need the grand daddy of them all expert.*" Another said, *"The best expert isn't the one you're necessarily going to contact."*

When people start using tools rather than their personal network, what features are they looking for? In this study, the corporate directory had the advantage that it was simple, widely available, and everyone had at least some basic information in it. However, it was not generally perceived as reliable primarily because its quality depended on individuals adding their own information. One person commented, "*My reservation is that data quality in the corporate directory is sometimes questionable... if the people manager would push people to fill out the information correctly I would find it useful*." We didn't get much information about use of broadcast tools primarily because there were none available at the time of the study. However, we were somewhat surprised at how often people used email as an informal broadcast messaging system, "*You know ask someone and they forward your email. You know, do you know someone who can help me with this. And they forward your email on and on from there.*"

| TOOL | Not Client-facing | Client-facing |
|---|---|---|
| **Directory**. An enterprise directory populated with information from HR records augmented with additional information provided by the individual | 33% | 44% |
| **Personal network.** | 23% | 29% |
| **Profile.** Dynamic profile (see e.g. [5]) | 15% | 5% |
| **Broadcast.** Tools, including email, for sending broadcast requests. Purpose built tools e.g. [11] were not widely available at the time of the study | 15% | 6% |
| **Intranet.** | 8% | 10% |
| **Social software.** Searching user generated data such as blogs, wikis, and enterprise social bookmarking software | 6% | 3% |
| **Documents.** An online repository | 0% | 3% |

**Table 1: Percent citing tool as alternate to SmallBlue**

Social software tools such as blogs, wikis and social bookmarking are an open medium for sharing personal views and organizing content. But do they also provide insight into someone's expertise? One person said, "*I've mixed emotions about social bookmarking. People don't necessarily bookmark stuff they know. Most of the stuff I bookmark is stuff that I'm trying to learn. So would I go to that person for expertise?*" This person went on to add about searching in blogs, "*People who blog are people who consider themselves an expert and have a lot of time to talk about it. Anybody that I know, a deep subject matter expert, rarely has the time to talk about it*." On the other hand, some people had the opposite perception of social bookmarking, "*My assumption is that if you're interested in it, you probably know something about it"*. And another found blogs to be useful, "*I would search that person's blog for [skill name] experience*." These tools are just beginning to emerge in corporate settings and may have not had sufficient time to grow beyond early adopters [9].

## DISCUSSION

It was clear from our findings that there are many reasons to search for experts. As expected, the most common were *getting answers* to technical questions and *finding people*. More surprising was that people were also interested in using tools to gain general *awareness* of "who is out there" and to find people to whom they can *provide information*. We believe these latter reasons have been overlooked in current tools and research [12]. Of the 4 reasons for search, we also found that those in client-facing roles were especially drawn to *finding people*. This is an intriguing finding which points to task or individual differences as an additional factor to consider in expertise search tools.

People in this study freely cited 7 other tools or methods they might use to find experts, in addition to the specialized expertise locator. These additional tools ranged from corporate directories and personal networks to email as a form of broadcast messaging, as well as intranets and social software tools. The variety of tools supports the idea that expertise search is about more than just finding the most competent person. We suggest that people are making tradeoffs when they select a tool; speed and ease of use over reliability of results in the case of the corporate directory, immediacy of response over breadth of results for personal networks, familiarity over quality in intranet searches. This study points to the need for new ways of thinking about tools for finding expertise information. Perhaps new social software tools could be used to help build awareness of "who knows what". If so, how might those features be integrated with other software? Is the information that people make public when they contribute to a blog or tag a web page really indicative of their expertise? In situations where people have information they want to share, perhaps we need tools that support a marketplace of ideas where people can advertise what they know and not just seek out expertise.

This study was not designed to provide an evaluation of any particular tool. We used an existing expertise locator tool as a stimulus to ask questions about the reasons behind a search, and we took advantage of the wide availability of tools in this company to examine current choices people are making. This brief study should not be construed as providing an evaluative comparison of these tools or between these tools and others which might be publicly available. Rather, this is an empirical exploration of why people are searching for experts, what they are looking for and how they currently conduct their search.

This paper extends previous research by examining the reasons behind expertise search, the effect of job role on search and the range of tools people might use to find experts. We hope that future work will explore how searching for people compares with other kinds of searches and the implications for tools to help find experts and the information they can share.

## ACKNOWLEDGEMENTS

We acknowledge Ching-Yung Lin's work to develop SmallBlue and thank him for his help with data collection.

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