Searching for people in the workplace: aims, behaviour, and challenges

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Abstract

Introduction. People have been shown to play an important role in solving search tasks in professional settings. Searching for a person covers a large part of the information retrieval carried out in the workplace. However, it can be challenging to identify relevant people through a query. Thus, to support workplace users, knowledge of the characteristics of people searches is needed to identify which steps can be taken to ease the retrieval process.

Method. This study examined the characteristics of people searching in a biotechnology company based on a mixed-methods process consisting of search log data from an in-house enterprise system, a questionnaire survey, and semi-structured interviews with users of the enterprise system.

Results. The findings showed that people search accounted for 59.5% of all queries in the search log. Log data and questionnaire data were analysed to determine how the queries were distributed across organisational areas and information sources. The interview data provided insight into how people search was used for locating people and expertise and as part of exploratory, complex subject searches. Challenges in searching for people were also discussed in the interviews. The findings were used to discuss the implications for future workplace information systems.

Introduction

In recent decades, the amount of information stored and navigated by employees in organisations has increased rapidly (Cleverley and Burnett, 2019; Deolekar and Dangare, 2018; Dmitriev et al., 2010). Workplace search is central in information retrieval and knowledge management in organisations (Byström and Pharo, 2019; Jones et al., 2016) for employees to be able to navigate a large amount of information, share knowledge, and make efficient decisions (Cleverley and Burnett, 2019; Kruschwitz and Hull, 2017; White, 2015b). Workplace search differs from other search types in several ways, such as structure and curation (Kruschwitz and Hull, 2017; Liu et al., 2014), heterogeneity of data (Li et al., 2014), purpose of search (White, 2015a), importance of information exposure according to access rights (Rats, 2017), and lexical classes used (Jones et al., 2016). These differences mean that general search studies do not necessarily translate into a workplace context. This may explain why many papers have discussed the lack of studies within workplace search (Deolekar and Dangare, 2018; Kruschwitz and Hull, 2017).

This paper focuses specifically on people searching in an enterprise search system. Searching for people takes many different forms and purposes in the workplace. To illustrate, Hertzum and Pejtersen (2000) identified how engineers searched for documents to identify people, while also searching for people to get documents for solving work tasks. A recent study identified the specific role of people in understanding context, projects, previous procedures, and actions in a biotech company (Lykke et al., 2022). Knowledge of people search can contribute insights into how users retrieve and identify current and previous colleagues to proceed with a current task. Over time, this insight is needed to tailor enterprise search systems to fit specifically to employees' information needs and information-seeking practices.

This study aims to answer the following research question: a) What characterises workplace users' search for people as part of their searching in an enterprise search system, and b) how can we support them in their people search?

Related work

Only a few studies have investigated people searching in an enterprise search context. People searches in workplace environments have previously been studied in different platforms and use contexts. Hertzum and Pejtersen (2000) investigated engineers' information-seeking practices in two product-development organisations. They found how the engineers searched for documents to find people, search for people to get documents, and interact socially to get information without engaging in explicit searches. People were a critical information source because they could explain and argue about why specific decisions were made and what purpose is served by individual parts of the work. They concluded that information systems should support searches for people.

Guy et al. (2012) emphasised the lack of knowledge about people searching in companies. In accordance with Balog (2007), they distinguished between expert search and people search, where people search represent searches for names, contact information, or roles, rather than the topic they are knowledgeable of in an expertise search. They examined the use of a people search application in IBM (Guy et al., 2012). The study identified differences in the characteristics of queries in a people search system that pointed to a people directory and an enterprise social media system. They found that first and last names were the most searched, and that people tended to look for the information they did not already have (e.g., if they knew the name, they were likelier to look up missing information like e-mail and phone number).

Yarosh et al. (2012) investigated expertise selection through choosing an expert from a list of recommended people. They studied 35 enterprise workers through a lab-based, controlled investigation. They found that presenting additional information about each recommended person in a search result list led participants to make quicker and better-

informed selections. Participants were asked to rate the type of information that might be most useful for expertise selection from a list of 36 types of potentially helpful information. They identified sixteen types of this information that may be most useful for various expertise selection tasks, including for example company division, expertise summary, job responsibilities, past/current activities, and projects. There was individual difference in the ratings, and there was no universal agreement as to which items were necessary or absolutely useless.

Hertzum (2014) specifically focused on expertise searching in his literature review of 72 papers. He defined expertise search as the activity in which users identify people as sources for solving information needs. His study confirmed the importance of people as information sources, for more complex tasks. He found that factors such as quality, accessibility, task and seeker characteristics, and context have an impact on which sources are used, and how.

Similar findings were made by Freund (2015), who conducted a study on software engineers. Part of the study focused on how engineers choose between people, documents, or hands-on learning for solving a work task. The study found that people are chosen as sources when the task at hand is vague, specific, or new, or if time is limited. In addition, there were examples of people being used to gain access to other people in a people-chaining process. The awareness of people's expertise, trust, and relationships would decide how the communication with possible experts would take place (Freund, 2015).

A recent study by Schoegje et al. (2023) investigating by interviews search tasks of policy workers confirmed that for complex tasks, users prefer finding domain experts within their organisation to obtain the necessary information. They concluded that these person dependent tasks can be supported by integrating expert search functionality.

The earlier research showed the importance of people in searching. The results emphasised that people searching is highly contextual with different aims, supporting different tasks, using different search strategies, and requiring different information. Based on the studies presented above it is clear that more studies are needed to understand the motivations and conditions for persons searching in workplace settings to identify how to support the searching for people.

Methods

The study was a case study of information-searching activities in the enterprise system of an international biotechnology company.

Case study

The company employed approximately 7,500 people and was organised into seven organisational areas: Top Management, Administration, Research and Development (R&D), Production, and three business areas, each doing R&D work for a specific industry and application area.

The enterprise search system was based on a SharePoint solution providing access to core corporate information sources: Intranet, People (people directory), News, MyMS (quality documentation system), Luna (research archive), Conversations (enterprise social media), and ELN (laboratory system). As seen in figure 1, the search interface allowed the user to search across all sources by the All index and in addition to specify the search for a selected source. The All index was the default entrance to the enterprise search system.
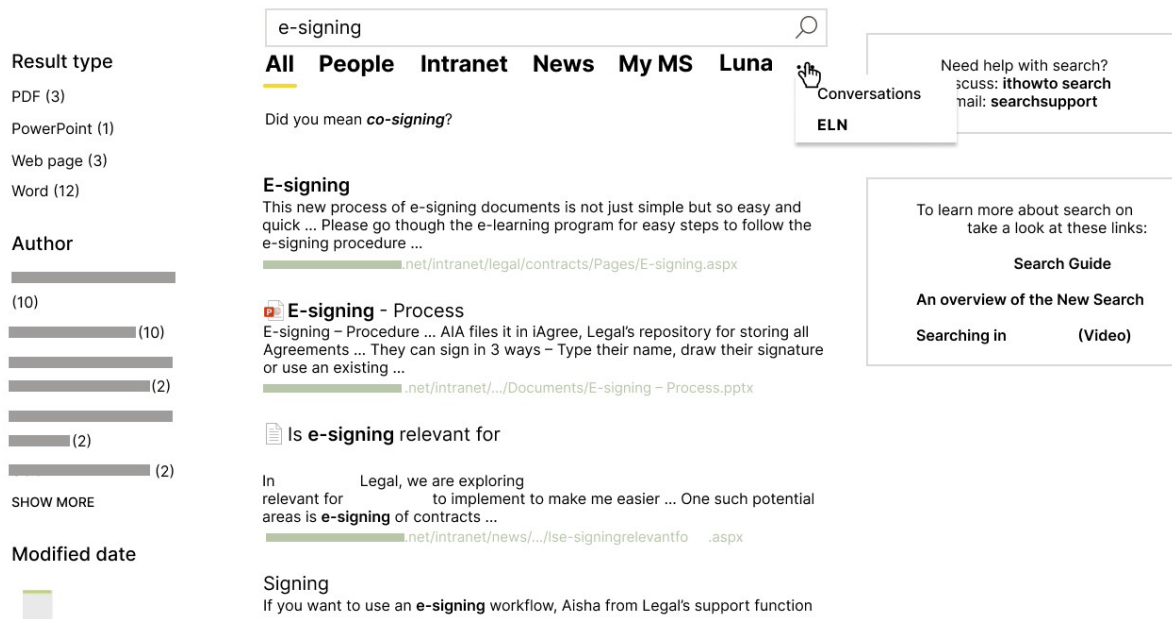
Figure 1. The enterprise search interface

Research design

The research design was a mixed-method convergent parallel format consisting of three separate studies of workplace searching activities: search log analysis, questionnaire survey, and interview study (Bryman, 2015).

The search log covered a four-month period in which 288,363 queries were submitted to the enterprise system by a total of 5,854 different searchers. Data about the queries were collected in an Excel file with information on 1) date/time, 2) searcher ID, 3) searcher's organisational affiliation, 4) searcher's job category, 5) search string, 6) source used, 7) number of keys in the query, 8) number of terms in the query, 9) query term top-subject category, and 10) query term sub-subject category. The queries were automatically categorised into a predefined set of 30 top-subject categories and 221 sub-subject categories using the SharePoint Categorisation feature (Microsoft, n.d.). The present analysis was based on data about the searcher ID, affiliation, job category, source used, and the two query term subject categories.

The questionnaire survey was sent to the 226 most frequent searchers who had searched the system over the prior three days. This procedure was chosen to ensure that the respondents remembered searching activities and answered the questionnaire on that basis. The questionnaire included 12 closed questions and one open question concerning the users' function, main language, time spent looking for information, satisfaction with search results, sources used, type of information, and reformulation strategies. The questionnaire survey was completed by 98 users (response rate: 43.4%). The questionnaire respondents consisted of employees from all five core organisational areas.

The interview study consisted of semi-structured interviews with eight enterprise system searchers. In the selection of the interviewees, emphasis was placed on the fact that they were frequent users of the enterprise system, so that they had experience with and thorough knowledge of the system. In addition, they were selected so that they covered the organisational areas R&D, Administration, and the three Business areas.

Top Management was not included due to time constraints. Searchers engaged in Production-related work tasks were organisationally anchored either in R&D or in a business area in the company, which is why Production was represented through interviewees from these areas. The interviewees were located both at the headquarters in Denmark and at regional offices, which is why four of the interviews were conducted in meeting rooms at the head office, while the other four were carried out by video conference.

During the interview, the interviewees were asked to carry out two searches that they had done recently. While searching, they explained in detail their search moves and considerations. The interview guide included questions about what work task motivated the search, aim of the search, what sources were used, search terms and search moves used, relevance criteria, location while searching, problems faced during the search, and whether the interviewees involved any colleagues or other persons in the searching. The interviewees were encouraged to relate their search to their work roles and organisational affiliations. The interviews were documented using audio and screen recordings.

Interviewee	Core organisational area	Work role	Location
1	Research and Development (R&D)	Senior scientist	India
2	Business Area	Accounting manager	Switzerland
3	Administration	Finance manager	Switzerland
4	Administration	Senior manager	Denmark
5	Business Area	Senior manager	Denmark
6	Research and Development (R&D)	Science manager	Denmark
7	Business Area	Scientist	US
8	Research and Development (R&D)	Information specialist	Denmark

Table 1. Interviewees

Data from the three studies were first analysed separately. Later, the results were compared, with an emphasis on finding explanations for behaviour and correlations identified through log analysis in the interview and questionnaire data. The analysis of log data consisted of descriptive statistics and cross-tabulations, along with T-tests for comparison among variables and types of queries. We analysed the distribution of query terms (top categories and sub-categories) across sources. No session analyses were carried out because the log did not record click activities that were made as part of a search session. Thus, the log file did not provide a complete picture of a session's search activities. For clarity, we merged the data for the three business areas, as they represented the same goals, work tasks, and types of employees.

Data from the closed questions in the questionnaire survey were analysed through univariate analysis. The analysis focused on examining the distribution of respondents' organisational affiliation, sources used,

administrative and professional tasks, and information types.

The interviews were transcribed, and, together with a review of screen recordings, they were used to generate a list of emerging themes for each interview. The researchers conducted the thematic coding separately as an open, inductive analysis (Bryman, 2015). In the next step, the researchers compared and discussed the coding results across the eight interviews to determine recurrent themes. In the present study, emphasis was placed on analysing the data and themes that involved the use of people and people searching in information-seeking activities.

Findings

The presentation of the findings is structured so that each sub-analysis starts with an overview of what the log analysis showed about the users' search behaviour, followed by descriptions from the interviews in which the interviewees explained how they used people searches in their searching activities. Questionnaire data are included when they contribute extra details.

Aims and query types

The log dataset consisted of 171,523 queries categorised as people search by the SharePoint feature, corresponding to 59.5% of all queries (see Table 2).

The large number of people searches identified in the log analysis was supported by the questionnaire data. Here the respondents were asked what types of information they most searched for in connection with administrative work tasks and professional work tasks respectively. Administrative tasks were tasks such as planning maternity leave for an employee or providing overview of customer orders, while professional tasks were investigating new application areas for an enzyme or finding validation information for a specific technology. In relation to administrative tasks the informants answered that '*looking for a person/location/department*' was the most requested information type. For the professional tasks '*looking for documents by me or a specific person*' and '*looking for department documents*' were listed as the second and third most searched information. '*Looking for a specific document where I know title/ID*' was the most searched information type for the professional tasks. The respondents described 28,8% of information tasks as administrative tasks and 71,2% as professional tasks.

	Administration (%)	Business Area (%)	Production (%)	R&D (%)	Top Management (%)
People search	46,591 (81.2)	33,442 (69.7)	33,667 (71.0)	57,343 (68.2)	480 (84.4)
Other query categories	10,785 (18.8)	15,544 (30.3)	13,731 (29.0)	22,766 (31.8)	89 (15.6)
Total	57,376	47,986	47,398	84,109	569

Table 2. Number of searches vs. other query categories for the five organisational areas

Table 3 illustrates that the most common types of people search query terms in the log file included searching for initials (83.7%), names (11.7%), departments (2.1%), and phone numbers (1.9%). People were rarely searched based on their title, job description, e-mail, or role as authors. Departments referred to units under the organisational areas. In the next sections we will elaborate on the user aims for searching for people, whether by initials, name, department or the like.

Subcategory	Number of queries	Percent of all queries (%)
Initials	143,532	83.7
Name	19,978	11.7
Department	3,572	2.1
Phone number	3,321	1.9
Title	805	0.5
Job description	145	0.1
E-mail	104	0.1
Author search	64	0
Other	2	0
Total	171,523	100

Table 3. Number of people searches divided between query sub-categories

People as shortcuts

During the interviews, the interviewees described several ways in which they searched for a person as a shortcut to a desired document or information. One interviewee explained that he searched for a colleague because there was a direct link to the desired document in the colleague's PowerPoint presentation. In all cases, they searched by initial or name.

> *I had a link to this master list in a PowerPoint presentation that a colleague had made, so when I could not find the document, I searched for the PP file, where I know there is a link to the document. (Senior manager, Business Area)*

Another example of people searching as shortcuts was when colleagues were searched to get referrals to other colleagues who possessed the requested information.

> *A large part of the search is calling the network internally to get information, such as 'Kim worked with it in 1997 and you can ask him,' and then I either get Kim to send some links, or I'll go in and look up Kim's documents to see if I can get the information. (Senior manager, Business Area)*

This last example of people searches as shortcuts also included an expertise search, of which many examples were given in the interviews.

> *I wanted to identify and contact a person in the US who had developed a technology that I would use in my project. I connected to another person in the US who said I could*

contact a specific person to get the information. Often, we must connect to people who refer us to other people. (Senior scientist, R&D)

People as expertise

Expertise searches were carried out with different purposes in mind. A science manager responsible for developing new enzymes explained how he regularly searched for innovative work in the organisation to subsequently contact the people involved in the research for mutual sparring and collaboration.

I am looking for specific enzymes and products to develop them. In this document, I can see that someone has made a product, and it is interesting to see what the product is used for and who made it. I then contact them and say, 'You guys are up to something. Would you be interested in talking together and maybe collaborating?' (Science manager, R&D)

Several interviewees emphasised in their explanations the problem with employees who had left or retired. New hires were challenged because they did not know them, others because they could not remember their names. In both cases, the interviewees requested that former employees could still be searched via the people directory, as they formed a significant part of the shared knowledge and memory.

There is this weakness that people disappear from our people directory, so if you search for a person that left, they are not there. It is difficult. Then you must find their documents and read your way to the answer (Science manager, R&D)

People as steppingstone

Like the example above several of the expertise searches were part of a tracing search strategy, where the searchers pieced together the desired information by using a combination of subject searching, looking up specific documents, and searching for a person

to contact them for information (reference anonymised). Sometimes, the tracing search was started by a subject search, as above, and sometimes by other aspects, for example, project and person, as below.

I wanted to get a hold of a closure report, so I started by searching for initials and project number to then find contact information in the document and contact the person. When I want some very specific information, I often end up finding the person and contact him/her. (Senior scientist, R&D)

In this variation of the tracing search, people sometimes became a form of steppingstone, where the searched person was consulted to find out how to continue the search for example by contacting a different person, finding a document, or looking up lab data. People search and expertise was then used to mediate the search.

You know that there is a person who wrote something 10 years ago, so you search, but then it turns out that you have remembered something wrong, and it is not that person who wrote it. Fortunately, you often have a related person who can help you and guide you in the search.
(Science manager, R&D)

Sources used

People searches were conducted across all sources of the enterprise search system (see Table 4). The All index and specification to the source People accounted for the most queries, with 118,730 queries in All and 50,642 in People. Therefore, the preferred approach for people search was not to narrow down to a specific source but to use the general All index or in fewer cases to look up the People source.

Through the interviews, several explanations emerged as to why the searchers searched widely in the enterprise system via the All index. One reason was the exploratory tracing search strategy, in which people search was part of a larger search strategy as a

steppingstone and a means to progress to the desired information. Searchers carried out this tracing search in the All index, jumping between all the enterprise system's sources to see what turned up and to be sure not to miss any information or trace. Another explanation was due to the people source not being updated or containing appropriate information. Searchers thus preferred to search for a person via the All index, as documents retrieved in many cases together gave a better picture of what the person had worked with over the years, for example, projects, enzymes, products, and application areas.

> Yes . . . it's a question of whether the person profiles are updated, so that the right people have the relevant keywords assigned. . . I'd just always ask someone else to refer me or find the person or information about him via relevant documents. (Senior manager, Business Area)

Source	Author search (n = 64)	Depart-ment (n = 3,572)	Email (n = 104)	Initials (n = 143,532)	Job de-scription (n = 145)	Name (n = 19,978)	Other (n = 2)	Phone number (n = 3,321)	Title (n = 805)	Total number of queries
All	90.6	71.5	85.6	69.2	58.6	67.4	100	81.1	59.6	118.730
Conversations	-	0.1	-	0	-	0	-	0	-	44
ELN	-	-	-	0	-	0	-	-	-	40
Intranet	-	4.1	3.8	0.4	7.6	.8	-	1.1	4.1	934
Luna	3.1	.3	-	0.2	11.7	0.2	-	0.2	0.6	439
MyMs	-	0.6	-	0.1	18.6	0.4	-	0.1	3.5	351
News	-	0.5	-	0.2	-	0.3	-	0.1	0.4	336
People	6.3	23.1	10.6	29.8	3.4	30.8	-	17.5	31.8	50.642
Not identified	-	-	-	.0	-	-	-	-	-	7
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	171.523

Table 4. Distribution of sub-categories queries across sources (percent) (N = 171,523)

In addition to using the All index and People source to search for people, a senior manager from the Administration explained how he used Conversations, the enterprise system's social media, to identify relevant people to talk to.

> I'm interested in who made likes to the article because I want to connect with people who have an interest in the topic to be able to talk to them about how we can develop and target the feature. (Senior manager, Administration)

Here, he looked up who had posted *likes* on the topic for which he wanted to find sparring partners. He further explained how he learned about a person, because Conversations provided news about updating personal profiles.

Internal social media is an exciting new opportunity that we must learn to use, e.g. it comes as news when someone updates their personal profile. Here I have learned about a person and her work with a particular product. (Senior manager, Administration)

Differences between organisational areas

To understand the nature of people searches, we also studied differences between the organisational areas. Table 5 shows which source areas used as points of departure for people searches. Business areas, Administration, and R&D were very similar, with approximately 70% of queries in All and 30% in People. The Production area had a slightly higher use of the People source

(33.8%), which left them with the lowest use of the All index. Top Management used All the most, with 83.1% of all their queries there and only 16.3% in the People source. All remaining sources were used for less than 1%. The data showed how Production and Top Management differed from Administration, Business areas, and R&D.

When queries were divided between subcategories, some differences also appeared between the organisational areas (see Table 6). Initials was the most used subcategory (least used by Production and most used by Top Management). *Names* was the second most used subcategory, with a similar use for all areas except for Top Management, which was slightly below the remaining areas, with 8.3% of queries.

	Business Area (n = 33,442)	Administration (n = 46,591)	Top Management (n = 480)	R&D (n = 57,343)	Production (n = 33,667)
All	69.7	70.8	83.1	69.8	65.3
Conversations	0	0	-	0	0
ELN	0	0	-	0.1	-
Intranet	0.6	0.4	0.2	0.6	0.5
Luna	0.4	0.1	-	0.5	0.1
MyMS	0.2	0.1	-	0.2	0.3
News	0.2	3	0.4	0.2	0.1
People	28.8	28.3	16.3	28.5	33.8
Unknown	0	-	-	0	-
Total	100%	100%	100%	100%	100%

Table 5. Distribution of people search across sources for specific organisational areas (percent of all queries) (N=171,523)

Department was most used by R&D with 2.8% and least used by Top Management with only 0.4%. This may be explained by the fact that R&D is looking for work done by either specific people or a department. Production, on the other hand, used phone numbers the most, with 3.5%, which is slightly above all other areas, who were in the range of 0.8% (Top

Management) and 1.9% (Administration). We do not have explanations as to why those in the Production area carried out more searches by telephone number. Author search, e-mail, job description, and title all have less than 1% of queries across areas and must be less important approaches for locating people.

The findings support the tracing search strategy, just as they support the interviewees' explanations that they used people as shortcuts and looked up people to find their contact information. Unfortunately, we do not have interview data from Top Management or the operative people from Production, but Production's more frequent use of People source suggest that within this group a set of employees carried out people searches, not as a steppingstone or shortcut, but with the goal of contact information for a person. A science manager explained that contact information was obtained through the people source: *'For me personally, the main entrance to the people directory is via All, because then I get both contact information and other things, but contact info is obtained via the people directory.'* (Science manager, R&D)

	Business areas (n = 33,442)	Administration (n = 46,591)	Top Management (n = 480)	R&D (n = 57,343)	Production (n = 33,667)
Author Search	0	0	-	0.1	0
Department	1.9	1.7	0.4	2.8	1.5
Email	0.1	0	-	0.1	0.1
Initials	84.9	84.0	90.4	83.9	81.6
Job Description	0.1	0.1	-	0.1	0
Name	11.3	11.8	8.3	11.1	12.8
Other	-	-	-	0	0
Phone Number	1.0	1.9	0.8	1.6	3.5
Title	0.6	0.5	-	0.4	0.5
Total	100%	100%	100%	100%	100%

Table 6. Distribution of people search across subcategories for specific organisational areas (percent of all queries) (N = 171,523)

Discussion

Below, we discuss the results, compare them with similar studies, and identify possible implications. At an overall level, the people search was found to be very dominant in the enterprise search, with 59.5% of all queries. The number varies when compared to related studies, but the variation, to some extent, is an expression of differences in study designs.

Overall, people search is prominent in many studies.

Initials were the most common query term, with name, department, and phone number being the second, third, and fourth most frequently used. Jones et al.'s (2016) study also identified subcategories of queries in an intranet search log. People-related queries were expressed as role and member, both with

low frequency compared to the emphasis in the current study. Guy et al. (2012) also identified subtypes of people search queries and found that person names were most frequently searched, whereas e-mail and location were less common. The overall distribution follows the present findings, although initials were not part of Guy et al.'s (2012) identification of queries.

Role of people searches

Interviewees described several reasons for searching for people. They searched for persons to get:

- Contact information: They searched for a person to obtain contact information for the person.

- Documents: They searched for a person to get documents written by the person.

- Expertise: They searched for a person to get expertise knowledge

  o Professional knowledge about enzymes, technologies, products and application areas

  o Organisational knowledge about previous projects, lab analyses, and research groups that have worked with a product or a technology.

Additionally, as part of the tracing search strategy, they searched for persons as:

- Shortcut: They searched for a person to get help from this person for example to find a person that know about a certain topic.

- Steppingstone: They searched for a person to help them to decide how to move forward in an exploratory, tracing search strategy.

The findings included the two people searches identified by Hertzum and Pejtersen (2000): search for documents to find people and search for people to get documents. In

addition, the findings corresponded in several ways to Hertzum's (2014) review findings about expertise seeking, which showed that the activity of selecting people as sources for consultation about an information need, is widespread in practice. People are an important source of information compared to documentary sources, especially in relation to more demanding and complex searches. Also, Freund (2015) and Schoegje et al. (2023) learned that people search was particularly important in relation to complex search tasks.

The present study results expanded our insight into how people are an essential component in complex searches, and especially expanded our understanding of the role that people have in an overall search as shortcuts and mediating steppingstones. Compared to piecing together the desired information via documentary sources, people were an important source because they can contribute with professional knowledge as well as organisational knowledge and, perhaps most importantly, can relate the various information to specific situations and previous works.

Sources used for people search

Most people searches were carried out in the All index. One explanation for the lack of specifying sources may reflect what Cleverley and Burnett (2019) refer to as Google and Alexa habitus, namely, that users consider search to be simple and search in a Google manner. Another explanation could be that the All button was the default search entrance, and other sources needed to be selected. A third explanation related to the aim of the search and the exploratory, tracing search strategy where the searchers had to piece together the needed information from different sources, sometimes as a steppingstone around in the enterprise system, and sometimes as a shortcut to identify colleagues to contact orally for professional as well as organisational information. In the tracing search, it made more sense not to limit the query to a specific

source but rather to conduct the query more widely to reach all relevant persons and traces. At the same time, the lower use of the people source was also related to the lack of updated and appropriate information in the people source, such as contextual information about projects, enzymes, and products that an employee worked with over time. The need to search broadly through the All index and be referred to people was further reinforced by the fact that former employees cannot be searched through the people source, which is why it was important to identify people who knew previous R&D work and who could refer to relevant, former employees.

Overall, Production and Top Management primarily used people search to find contact information, while Business areas, R&D and Administration both used people for contact information, but also used people search as part of the broader exploratory searches. The differences emphasised that users, tasks, and search purposes are different and should be taken into consideration in initiatives to support people searches.

How to support people search

Several initiatives can be made to support enterprise people searches. Hilger and Wahl (2022) mention the connected search experience, where specific information on what was searched for appears with extensive information on the right-hand side of the screen that includes contextual information on the used search term. A similar solution was made in the enterprise studied in the current paper but with contextual information for each of the search results. The authors are currently evaluating this potential.

Hilger and Wahl (2022) also reflect on the challenge of ranking people's results in people searches because people are rarely represented with significant information, in people directories and in general. They suggest that people's information should be assigned weights to get a better ranking and appear closer to the top in the search results.

Borges et al. (2020) suggest a combination of named entity recognition and deep learning to support users in enterprise searches, both when searching for people and subjects. The model is at an early stage, but the results are promising, and experiments should be carried out with more varied content and search cases to identify its potential in a broader context.

Another initiative specifically relates to searching for people via their initials, which accounted for 83.7% of all people searches in the current study. Specifically, the combination of machine learning and a semantic tool was used to handle queries consisting of initials. However, the attempt was less successful because initials were commonly mixed with other meanings of the same combination of letters, which obviously disturbs precision (reference anonymised). It is possible that adding semantic tools could improve these first attempts and thus contribute to improved searching for people based on their initials.

Study limitations

The current study represents a case study of an international biotech company, based on a four-month full search log of the enterprise system, as well as survey and interview data collected among the most frequent searchers in the logged period. Departing from a specific period of the year does not consider possible seasonal fluctuations taking place outside the studied period. However, the logging period was placed in a period with no general holidays or bank holidays to minimise possible irregularities. Likewise, the sampling for most frequent users do not allow us to generalise findings based on survey and interview data to less active users. Further studies should elaborate on this particular type of users.

Concluding remarks

The purpose of this paper was to study the characteristics of people searching in workplace settings to identify how we can support them in their searching. It can be concluded that, in the international biotech

company which formed the case for this study, people search represent an important access point to content in the enterprise search system, both in terms of people searches, expertise searches, and as steppingstone in explorative, tracing searches. Initials are particularly central to searching for or looking up colleagues. The challenge with the initials is that they can represent different meanings, which can cause disambiguation in the free-text search results. In general, people search is associated with challenges, and when many queries consist of initials, further initiatives need to be taken to support users and enable them to make efficient and effective searches in the workplace.

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