



# Expert searchers user research

Health Education England

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# 1. User research overview

## 1.1. Executive summary

The user research was conducted by Lagom Strategy (a digital user research agency) during January, February and March 2020.

The research focussed on the needs of expert searchers in the NHS: individuals who carry out frequent or complex searches to support clinical practice, research, service development or systematic review.

Expert searchers are a relatively small group, with a distinct set of needs. Most, but not all, expert searchers are professional librarians. Some of the needs we identified in this research are the particular needs of a niche of this small group.

Expert searchers deploy their expert skills to find, organise and share information. Many use the Healthcare Databases Advanced Search (HDAS) to do this, but the skills of expert searchers are agnostic of particular tools. They use a range of other tools and methods, as well as HDAS.

Our research highlights satisfaction with HDAS amongst users, but it also highlights users' frustrations. The work also captures the evidence about the experience (positive and negative) of using other methods, including native interfaces.

The research identifies a set of distinct expert searcher user needs. Of those needs:

- a small number of these needs may be met by a future national discovery service
- some of the needs suggest possible support for expert searching that is not currently available or imagined, and may or may not be feasible for HEE to meet through digital tools

- some of the needs might be met in other ways by HEE, for example by learning and development or communications.

The research has concluded with a validated, and prioritised user story backlog which can be used to inform HEE decisions about how to proceed with services for expert searchers.

## 1.2. User research goals

At the start of the research we agreed on these goals with the Health Education England team:

1. Understand who 'expert searchers' actually are
2. Understand and articulate the common scenarios and user journeys
3. Identify the user needs in those scenarios
4. Understand how expert searchers currently meet these needs
5. Validate the significance and impact of those needs to expert searchers
6. Prioritise which of these needs can be met by a National Discovery Service and which are better met in other ways

## 1.3. The scope of the user research

The scope of the work was limited to understanding the needs of expert searchers in the NHS. Expert searchers are defined as NHS staff who conduct complex or frequent searches for information and knowledge.

It builds on previous research into the needs of non-expert searchers, which was used to inform decisions about national discovery services.

The work was delivered in parallel with work conducted by NICE to quantify the demand for expert searching by an analysis of analytics from the Healthcare Databases Advanced Search (HDAS).

This work provides findings from the research, rather than making any recommendations about how to proceed.

## 1.4. Project team

### 1.4.1. Lagom Strategy

- Stephen Hale - Lead Digital Strategist and Project Lead
- Dr Helen Taylor - Delivery Manager
- Dr Charlotte Jais - Lead User Researcher
- Adam Spencer - User Researcher

### 1.4.2. Health Education England

- Lucy Reid, Helen Bingham, Helene Gorrington, Richard Bridgen - Health Education England

## 1.5. User research activities

The user research was conducted during January, February and March 2020.

The activities allowed us to generate the insights in this report and the other user research outputs:

1. **Kick-off workshop** with key project stakeholders
2. Reviewed online and documentary sources (see Annex I)
3. Conducted **12 one-to-one user interviews**

4. Ran a **user needs workshop** with a range of stakeholders and end user role representatives, to generate proto-personas and user journey scenarios
5. Ran a diary study with **3 participants**
6. Analysis of a **user needs survey** with 169 responses
7. Observed **3 field visits**
8. Developed a **journey maps** for 3 user journeys
9. Created and prioritised **30 user stories** with the HEE team
10. Presented a project **show-and-tell**

### 1.5.1. User research participation levels

Participation levels in the user research activities were satisfactory for the level needed for a thorough user research process.

## 1.6. Key associated documents

- Proto-persona profiles
- Journey maps
- User story backlog

Note: **all** project documentation has been gathered and shared with the HEE team via the project Basecamp (<https://3.basecamp.com/3606110/projects/11275496>).

## 1.7. Background to this user research

HEE have ambitious plans to provide a national discovery service for NHS staff. The service will provide a single gateway to

trusted sources of information and knowledge, and will be developed to meet needs of the majority of potential users.

However, the national discovery service may not meet the needs of more expert searchers who need to carry out complex, frequent and repeat searches, for example to support a systematic review.

These expert searchers currently use a range of tools to conduct their work, including HDAS which provides a single interface to search datasets from multiple providers.

This research provides evidence about the needs of this group of expert searchers to inform decisions about how they might be met.

## 2. User research

### 2.1. Method

Our researchers consulted with a range of users during the user research to explore their context, needs, emotions, and behaviours.

#### 2.1.1. Qualitative research

- 12 one-to-one interviews with user representatives
- 5 user participants in a user needs workshop
- Observed 3 field visits with 3 participants
- Reviewed open text comments in 169 online surveys
- 3 participants in a diary study

#### 2.1.2. Quantitative research

- 169 respondents to the online user needs survey

Note: due to time restraints, surveys were online, with links sent to email addresses. It is appreciated that this may bring a bias

toward users with a higher level of digital literacy. This was considered when interpreting the results.

## 2.2. User roles

The user research explored these user roles, identified during the inception phase:

### 3.2.1. Primary roles

#### **3.2.1.1. Information and knowledge professionals, including librarians**

- HDAS users
- Native interface users
- Trainers
- Literature searchers
- Systematic review searchers
- Clinical librarians
- Corporate librarians
- Subject librarians (academic)

#### **3.2.1.2. Expert non-librarians, including heavy users of discovery tools such as HDAS**

- Researchers
  - NHS R&D
  - Applying for research grants
  - People writing guidelines/policies
  - Doing research projects
- Individuals
  - Keep up to date with latest research
  - Sharing latest research with others
  - Documenting results
  - People doing CPD
- Masters students
- PHD students
- Trainers of non-librarians



- Pharmacists

Note: Some users can cover one or more roles (eg librarians who cover both clinical and corporate).

## 2.3. Key findings from the user research

Our findings are organised by 4 broad groups:

- **Who the expert searchers are:** who makes up this group, and what defines them
- **Performing expert searches:** how expert searchers behave, why they behave in these ways, and the tools and techniques they use
- **Current satisfaction:** levels of satisfaction with the tools and support available
- **Unmet needs and current workarounds:** what expert searchers would like be able to do but can't, or find difficult

### 2.3.1. Who the expert searchers are

#### 2.3.1.1. Most expert searchers are librarians

The user research found that most expert searchers are professional librarians.

This finding supports the evidence from the analysis of “Heavy Users” of HDAS carried out by NICE, which found that all but 7 of the 250 heaviest users of HDAS are professional librarians.

Other expert searchers include healthcare practitioners, healthcare researchers, Masters and PhD students. And some people in other roles, such as Health Technology Analysts, may also be expert searchers.

Non-librarian expert searchers do not seem to develop their searching skills organically as part of their professional role. Instead, they develop their expert searching skills through additional training or postgraduate study.

"We get to be trained specifically in using various databases, analysing the resources" - **Pharmacist, interview**

"I didn't have any such skills until I decided to start with my Masters degree" - **Masters student, Consultant Psychiatrist, interview**

"I've also done a CLAHRC fellowship, which is this thing about transferring research into clinical practice... ..as part of the CLAHRC we were given some training in searching" - **Clinical Psychologist, field visit**

"My background is all academic research. So a lot of that involved searching, largely PubMed, for sort of scientific papers and what have you" - **Health Technology Analyst, interview**

### 2.3.1.2. Knowing where to look for information is a key expert searching skill

Users reported that knowing where to look for different types of information is part of their expert searching skill set.

This indicates that expert searching skills are not bound to a specific tool such as HDAS, but that they can be applied to a range of different sources.

"We just all kind of know which sources we need to search for each request as it comes in" - **Librarian, interview**

"Some of my skills are centered around knowing where to look for information" - **Librarian, interview**

"It's a case of trying to kind of expand my knowledge of different sources of information and where that would be held. It's tricky because there's obviously so many different places, it's just a case of taking each search as it comes and trying to kind of work out where the best places are to look" - **Librarian, interview**

### **2.3.1.3. Expert searchers do things that non-expert searchers cannot do**

Users suggested that while non-expert searchers are likely to carry out quicker searches, expert searchers carry out different types of search that are far more thorough. They noted that expert searches are more in-depth and exhaustive.

"They're probably just looking for something quite quickly whereas I think we're looking for, you know a lot more in-depth and finding everything or everything as far as you possibly can" - **Librarian, interview**

"We are very thorough" - **Pharmacist, interview**

"We wouldn't just look in one database, we would look in several" - **Librarian, interview**

Users also described using features of search interfaces that non-expert searchers would be less likely to make use of. This includes using different fields within the search interfaces and using the thesaurus to identify additional search terms.

"Particular fields, tapping into the thesaurus, the taxonomy that's used on each particular database. Being able to collate the results I'm getting back" - **Librarian, interview**

During the field visits, users were observed using features such as the thesaurus in HDAS, MeSH browsers, and floating subheadings.

### **2.3.1.4. Expert searchers use their specialist knowledge to guide their searching**

Expert searchers may have specialist subject knowledge which they use to guide their searching. For example, pharmacists

may use their knowledge of specific drugs and clinical conditions to assist them in finding relevant information to answer questions from requesters.

"I may not find the drug being used in the clinical condition they're asking me for but if I can think of a similar clinical condition and I can find the drug being used there, I might extrapolate that data" - **Pharmacist, interview**

The specialist knowledge that expert searchers have around the functionality of different search tools and interfaces can also guide how they search.

"Using the various limits and all the additional features on the databases but using them to the best advantage... ..knowing when to use them and knowing when not to use them as well" - **Librarian, interview**

#### **2.3.1.5. Expert searchers carry out a wide range of different searches**

The qualitative research found that there is a vast range of expert searches. This includes literature searches, searching for systematic reviews, and searching to inform patient care.

Other expert searches include searching for audits and corporate searches, as well as searching to inform guidelines and policy.

84% of respondents to our survey said that they carry out searches to inform guidelines and policy, while 54% of respondents are carrying out searches for systematic reviews.

#### **2.3.1.5. Expert searchers are running searches for themselves and for other people**

Librarians reported that they are mostly searching for information for other people. Their searches are typically prompted by a request from a library user. For example, a librarian may receive an email from a clinic or manager asking

for information on a particular topic, or an answer to a specific question.

“Almost all of it is for other people. So, anyone who works for the Trust, so any doctors, nurses, management staff” - **Librarian, interview**

“It’ll usually be an email, or a discussion with a library user, who has a question that they need answering” - **Librarian, interview**

Some librarians reported that they may carry out additional preemptive searches for others. For example, they may carry out searches on topics that are being covered in the news if they expect that library users will request information on such topics.

“We do some kind of, what we’d call preemptive searching, so we do a bit of that. So if we think there’s topics that a lot of staff are asking about or there’s something in the news that’s a big topic or a new initiative, we would preempt that and produce something for all the staff” - **Librarian, interview**

Some expert searchers run searches for themselves as well as for other people. This may apply if an expert searcher has more than one role, for example if they are a healthcare practitioner and a Masters student. In this case, they may search for information relating to patient care and share this with colleagues in their role as a healthcare practitioner. On the other hand, they may carry out searches for themselves when working on their dissertation in their role as a Masters student.

“Usually, if it is something interesting, of course I share it with my colleagues at work in order to find ways together, how we’re going to take a case forward... with my dissertation it was a personal thing so I didn’t have to liaise with anyone” - **Masters student and Consultant Psychiatrist, interview**

While librarians reported that they largely carried out expert searches for other people, there was some evidence to suggest that on occasion they also carry out searches for themselves.

One librarian who took part in the diary study recorded carrying out two searches that were not for other people. These searches both involved looking for information when planning upcoming training sessions with library users.

#### **2.3.1.6. Some expert searchers train others to run their own searches**

Some expert searchers reported that they train students and staff to run their own searches.

These people noted that while part of their role involves using their skills to find information for other people, another important part of their role is to upskill other people.

This is not a behaviour that is restricted solely to librarians; other expert searchers such as pharmacists also reported training other people in using HDAS.

“It’s kind of using my own skills and also sort of trying to upskill everybody else” - **Librarian, interview**

“I actually provide that training in an IT suite, over one-to-one, with a group of people all sitting at a computer and going through it” - **Pharmacist, interview**

#### **2.3.1.7. Some people self-define as expert searchers but do not meet the criteria for being expert searchers**

Some users reported that they were expert searchers but their search behaviours indicated that they are not.

These users may have strong information searching skills but are not currently carrying out complex or frequent searches and are therefore not currently expert searchers.

These users had no experience of using HDAS, and did not search using the native interfaces. They use Google and Google Scholar to meet the majority of their searching needs. The searches that they are carrying out lack the level of depth and thoroughness that is characteristic of expert searches.

The needs of this group are likely to be met by the National Discovery System or existing platforms such as Google.

During the kick off session for the project, potential user roles for expert searchers were discussed. It was anticipated that administrators were unlikely to be expert searchers, and that if there were any administrator expert searchers, the numbers for this group would be very small. This was confirmed by the fact that no administrators came through the initial screening form for this research.

## 2.3.2. Performing expert searchers

### 2.3.2.1. Lots of expert searches are carried out in HDAS

The qualitative research found that expert searchers are heavy users of HDAS. HDAS is often used as a first port of call for expert searchers, and many reported that HDAS is their primary tool for searching for information.

**“Most of the time I would start with HDAS” - Research Officer, interview**

**“Barely a day goes by when I’m not on the NICE HDAS website looking for something” - Health Technology Analyst, interview**

This was supported by the results of the user needs validation survey, in which 86% of respondents reported using HDAS. These findings are in line with the HDAS user statistics provided by NICE, which indicate that expert searchers are heavy users of HDAS.

### 2.3.2.2. A key part of some expert searches is planning the search itself

The research found that planning is an important part of some expert searches. This involves developing the search strategy and identifying appropriate keywords.

"I tend to try to come up with a bit of a strategy first, before just sort of diving in. So, kind of thinking around keywords and thinking of like different synonyms, kind of building the sort of structure of the search up" - **Librarian, interview**

Expert searchers may also carry out an exploratory search if they receive requests for information in an area that is unfamiliar to them.

As observed in one of the field visits, expert searchers may use Google or Wikipedia to quickly look up information on an unfamiliar topic, treatment, or clinical condition, and use this information to assist with identifying relevant subject headings.

"Started with exploratory search to assess the number and types of publications broadly related to the question and to familiarise myself with the specific terminology, and gather subject headings and keywords and synonyms" - **Librarian, diary study**

One user indicated that this is to ensure that their searches are exhaustive and capture all of the relevant information.

"As an expert searcher you've kind of got to have a little more tenacity there and be able to really really expand on that and have, you know, all of the possible keywords and be completely exhaustive and, you know, think of all the international variants" - **Librarian, interview**

### **2.3.2.3. Expert searchers are using a wide range of search interfaces and information sources**

While lots of expert searches are carried out in HDAS, the qualitative research identified a large number of different search interfaces and information sources that are used when carrying out searches.

A total of 26 different search tools were mentioned in the diary study. Those that were used most frequently across the diary study entries include HDAS, PubMed, Google Scholar, and CRD.

Those who responded to the user needs validation survey are using a variety of additional resources. These include Cochrane,



Trip, sources of grey literature such as OpenGrey, and specific websites such as Royal College websites.

Some expert searchers have lists of go-to resources outside of HDAS and the native interfaces. These lists may be ones that users have created themselves as a means of keeping track of useful resources.

"I've got a list basically that I kind of add to, lots of different sources that I can refer to because obviously there are so many, it's hard to kind of keep track" - **Librarian, interview**

Other expert searchers, such as pharmacists, are provided with lists of recommended resources.

"[UKMI] creates a list of resources that are recommended for all the MI services to use" - **Pharmacist, interview**

#### **2.3.2.4. There are a number of factors that guide decisions on which search tools are used**

Some decisions on where a search is carried out are based on habit, training, or familiarity with certain tools.

"I suppose it's a little bit of habit. A little bit of the way I was trained initially when I joined the NHS" - **Librarian, interview**

"HDAS was the first one that I learned, and I [felt] more confident with using this" - **Masters student and Consultant Psychiatrist, interview**

Other decisions on which tools are used for searches are guided by the question that is being asked.

"Generally look at the question, or questions, if it's multi-component" - **Librarian, interview**

A librarian in the diary study noted that they had chosen to search in HDAS and Pedro because these databases suited the clinical question.

Some decisions on search tools are guided by what expert searchers have access to.

"It's [HDAS] what's provided through the hospital" -  
**Health Technology Analyst, interview**

"I use HDAS because I also feel that we ought to use what we've paid for" - **Librarian, field visit**

In some cases, expert searches are guided by the information requester when choosing search tools and resources.

"Sometimes they'll [the requester] make a suggestion" -  
**Librarian, interview**

"I think there's an element of this is what we think our users expect" - **Librarian, interview**

### 2.3.2.5. Expert searchers use a range of methods to record, report, and share the results of their searches

Methods for recording information include spreadsheets, saving search strategies in HDAS, and using reference management software. Some expert searchers use templates to record and share the results of their searches.

"We have an in house template that we use. It's a Word document based off one from a different hospital... the document is then saved on our shared drive as a PDF and is emailed to the user" - **Librarian, interview**

"We have a template that can be adapted, that would include details of who has done it, and what they're asking for, the question they're asking" - **Librarian, interview**

Some reported other methods of sharing information. These methods include writing up search results as reports, sharing information at meetings, and sharing specific articles with colleagues in person.

"That [sharing information] would be done, most of the time, writing a report at the end" - **Research Officer, interview**

“What I might have done is print that article and show it to the psychiatrist before the appointment” - **Clinical Psychologist, field visit**

### 2.3.2.6. Timeframes for expert searches vary with different types of search

Some expert searches take longer to complete than others.

One librarian in the diary study recorded searches that ranged from 30 minutes in length (searching for current awareness) to 210 minutes (searching to inform patient diagnoses).

Some searches are carried out over multiple days.

One librarian in the diary study reported carrying out one search (literature search) across 2 days. This was broken down into 2 sessions, each lasting for 90 minutes.

“We think, and this is only a guess, anywhere between about 15 and 30 hours of our time [for a systematic review search]... it will be broken up, a few hours here, a few hours there” - **Librarian, interview**

The priority that is given to a search may depend on the purpose of the search.

“Urgent patient care, that will get prioritised over something that is like a systematic review” - **Librarian, interview**

It was observed during a field visit with a librarian that the target timeframe for searches for patient care was much shorter (2 working days) than for searches for education, teaching, or CPD (4 weeks).

Priority rank*	Search purpose	Target date*
1	Urgent patient care (inpatient / decision or information required within next few days)	2 working days
2	Legal	1 week
3	Patient care or patient information: general or outpatient / other	3-4 weeks
4	New Trust guideline, policy or CBR	3-4 weeks
5	Research or audit projects	3-4 weeks
6	Corporate, management, service change / improvement	3-4 weeks
7	Review of Trust guideline, policy or CBR	4 weeks
8	Publication or conference presentation	4 weeks
9	Education, teaching or CPD	4 weeks

*\*N.B. subject to discussion with requestor and individual circumstances, e.g. patient appointment date, upcoming meetings, external deadlines, etc*

Image: photo taken during a field visit of a printed guide showing targets for different search purposes

### 2.3.3. Current satisfaction

#### 2.3.3.1. Users were generally satisfied that they could find the information they need

Users indicated that overall, they are generally satisfied with the tools they have available to them for finding the information they need.

**"I think pretty satisfied" - Librarian, interview**

**"I would say very satisfied, top of the scale" - Librarian, interview**

Some users are less satisfied.

“Partially. We could do with better management stuff” - **Librarian, interview**

“I’m probably dissatisfied with our local IT” - **Pharmacist, interview**

One librarian in the diary study reported IT and network issues in 3 out of their 10 diary entries.

### **2.3.3.2. Users identified the positive elements of their experience with HDAS**

Users feel that HDAS is user friendly, easy to use, and that it has a clear interface.

“I use HDAS because it’s a really nice, clean interface” - **Clinical Psychologist, field visit**

Those who have been using HDAS for longer periods of time feel that it has improved since it was first developed.

“Compared to how it was when it was first being developed, it’s [HDAS] so much better” - **Librarian, interview**

Users find it helpful that they are able to easily switch between different databases within HDAS without having to use a different interface. They also feel that HDAS is useful for carrying out thorough searches.

“HDAS gives you this flexibility of being able to switch from one, you know, PubMed or Medline, or join them together” - **Research Officer, interview**

“Being able to sort of combine, you know, do a really thorough search” - **Health Technology Analyst, interview**

### **2.3.3.3. Users identified the positive elements of their experience with other search tools**

Users feel that the native interfaces are robust and reliable.

"I think generally they're [native interfaces] a lot more robust, they never go down" - **Librarian, interview**

Users explained that the additional features that are present in the native interfaces are helpful for expert searchers.

"I think they [native interfaces] have a lot of features that are really beneficial, things like being able to do more complex searches" - **Librarian, interview**

Specific features in some search tools were singled out as being particularly useful.

"Things like domain searches are useful on Google" - **Librarian, interview**

#### **2.3.3.4. Users identified the pain points in their experience with HDAS**

Users described some of the difficulties that they encounter when using HDAS. Some of these difficulties relate to accessing full text articles through HDAS.

"Sometimes I can't get things through our [Trust] HDAS subscription. But sometimes you go to PubMed, do the same search, and some of the papers you can just get through PubMed" - **Health Technology Analyst, interview**

Users also reported problems with running complex searches in HDAS. During one of the field visits, a Clinical Psychologist explained that it is not possible to use the AND/OR operators in HDAS when a user is running a search across multiple databases.

Users suggested that HDAS is therefore not as good as other search tools for complex searches.

"If you do a sort of more complex search where you search for term A, and then term B, C, D, E. If you then combine them, using the AND/OR functions, you can't then repeat that search across 3 or 4 other databases, you've got to go and do each one separately" - **Health Technology Analyst, interview**

"Previously, you used to be able to run a keyword search across 5 databases, run another keyword search across the same, as long as they were the same 5, you could then combine them with the AND operator within the search panel. That's no longer available, you have to either search the databases separately or put your entire search strategy into a single search line and then just run it as a one off, you can't then add any limits or combine any more" - **Librarian, interview**

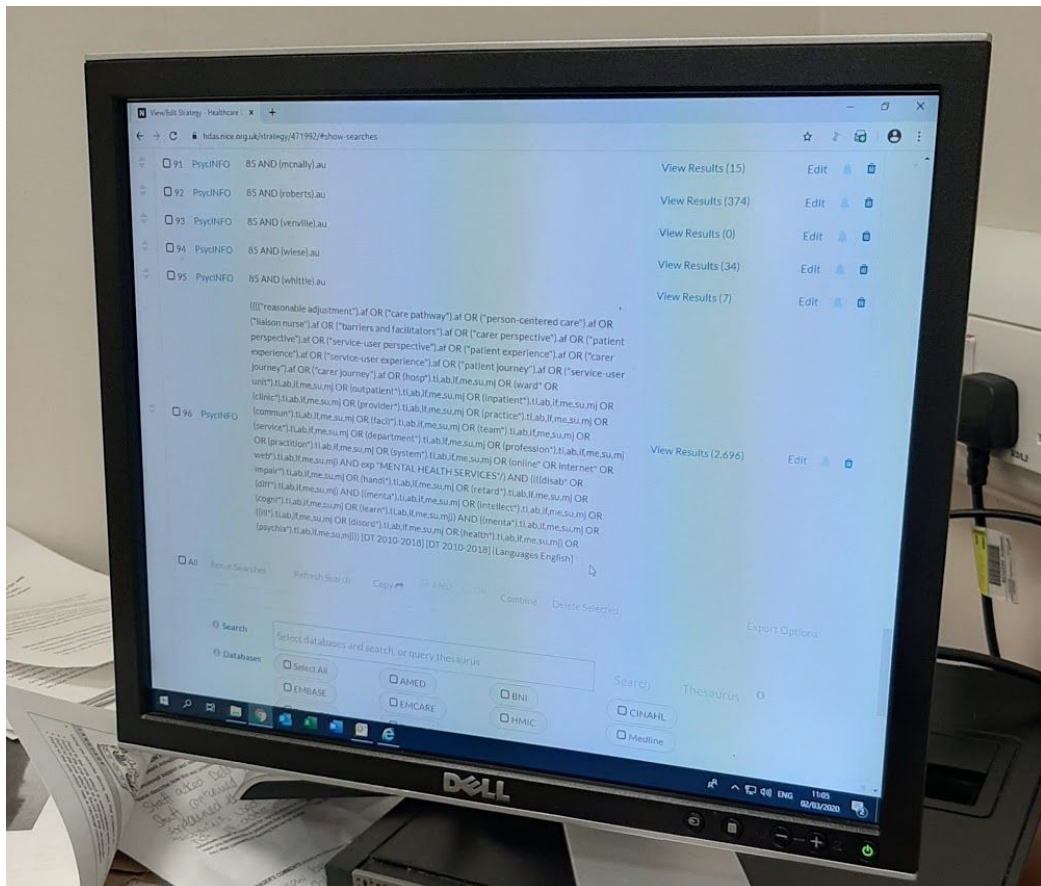


Image: Photo taken during a field visit showing a complex search in HDAS

Some users expressed frustration at the error messages they receive in HDAS. Users explained that error messages are sometimes unclear, and sometimes appear for no reason.

**"You get errors sometimes and you're not sure why" - Librarian, interview**

**"Sometimes you'll do a search in Medline and then try and replicate it in EMBASE, and often, you often get lots of error messages, for no reason. Often you have to kind of click retry and it works that second time" - Librarian, interview**

One user also noted that sometimes when errors occur in HDAS, they do not receive an error message, but instead they are alerted to the error as their search returns unexpected results.

**"I think in some cases like that it's not that you've got it wrong and you get an error message, you just get a slightly odd result" - Librarian, interview**

Some users are frustrated that HDAS does not cover the most recent content.

**"It's [HDAS] not as up to date as PubMed. It's not updated as regularly so you can do a search in HDAS but then it's obviously not necessarily got the very recent articles, so that's a little bit annoying if somebody wants really up to date stuff or just recent information" - Librarian, interview**

One librarian in the diary study reported searching in PubMed as well as HDAS to ensure that they were capturing the most recent evidence.

**"Primary sources (articles) search in HDAS Medline and Embase was complemented with a search in PubMed to ensure the most up-to-date evidence was found" - Librarian, diary study**

Some users highlighted problems that they experience when using the thesaurus in HDAS.



"I had problems with searching for the corresponding subject headings in HDAS Embase (the search facility there is simply inadequate, it would have been much better to have access to proper Embase thesaurus search)" - **Librarian, diary study**

"It used to be that you could type in a word, search it in the thesaurus, and it would come up with lots of different things relevant to that. But now you have to type in the exact thesaurus term for it to actually come up, and that's really annoying because usually you don't necessarily know that the thesaurus term is" - **Librarian, interview**

"When I'm using Medline, I always use that with the original MeSH browser from the National Library of Health... I found their MeSH browser much much more useful than the one from HDAS" - **Pharmacist, interview**

Some users explained that they use another MeSH browser to find their terms before carrying out a search in HDAS.

"I do go through the process of knowing what my terms are before I even get to HDAS, then having to go through the whole thesaurus process and having to re-input everything... that is a process I'm willing to do" - **Pharmacist, interview**

"I have to go to PubMed, to their MeSH headings in PubMed to find out, so it's like an extra step. I find that really frustrating and annoying" - **Librarian, interview**

Some users explained that they do not feel that HDAS is suitable for carrying out searches for systematic reviews. Users therefore carry out these searches using other tools such as the native interfaces.

"We end up having to use the native interfaces, because HDAS just can't cope with it" [systematic reviews] - **Librarian, interview**

"It [HDAS] doesn't have the same quality of reproducibility as Ovid does. So particularly if they're publishing, then I would do the search on Ovid, it's worth the extra hassle if other people are going to see this" - **Librarian, interview**

### 2.3.3.5. Users identified the pain points in their experience with other search tools

Some users indicated that the user guides for the native interfaces are not always helpful.

"If you go to PubMed and you want to find out how to use that, the user guide is horrendous, it's like a completely different language" - **Pharmacist, interview**

"There are some new features being introduced by them [native interfaces], which the database providers don't necessarily explain very well" - **Librarian, interview**

Some users explained that the native interfaces all look different from one another, and that they all work in different ways.

"I really don't like the EBSCO one... I find that one much more complicated to use" - **Librarian, interview**

"They [native interfaces] all work slightly differently" - **Librarian, interview**

Users need to learn how to use each individual native interface. For expert searchers who are heavy users of HDAS, running searches in the native interfaces can take longer because they are less familiar with them.

"For me there's always a little bit of a kind of a learning curve of oh right where's the box to put the search terms in and oh it's over here and how do I combine this and so on" - **Librarian, interview**

"You have to know how to use them and we don't receive training. Well, I've never received training in it, I've only ever learned how to use them through my own time and effort" - **Librarian, interview**

"It's annoying that I have to do it separately [search Health Business Elite], I can't just search it as part of HDAS... ...it would be less time consuming and not having to kind of learning how to use a different type of interface, with different ways of truncation and things like that" - **Librarian, interview**

Some users highlighted problems with re-running searches and managing duplicates when working across different search tools.

"Lack of ability to re-run things... ...I'd have to just look at my search strategy and type it all out again" - **Librarian, interview**

"Making sure there's no duplicate entries, is always very time consuming" - **Librarian, interview**

Some users reported that it takes extra time to compile the results of a search when they have searched in different places.

"There isn't an easy way to export and import the search results in KnowledgeShare... ...time consuming for even relatively small amount of results!" - **Librarian, diary study**

"I need an easier way to compile search results from multiple resources as I don't have access to reference manager software" - **Other library and information professional, user needs validation survey**

### **2.3.3.6. Some users felt their needs would be met by other search tools if they were unable to use HDAS**

Users who are heavy users of HDAS were asked how they would run searches if they were unable to use HDAS. Some users felt that their needs would be met by other services.

"If HDAS went down I would use PubMed for my Medline access" - **Pharmacist, interview**

"Just a standard PubMed search" [if I couldn't use HDAS] - **Health Technology Analyst, interview**

"I would go directly again to PubMed or Medline" - **Research Officer, interview**

"We do have access to the native interfaces here as well, we've got access to Medline, and EMBASE through Ovid so yeah, we've got kind of a fallback" - **Librarian, interview**

"If push came to shove, that's [native interfaces] all you really need for advanced searching" - **Librarian, interview**

Some users had concerns about specific needs not being met by other search tools.

"If HDAS went down, I have no Embase" - **Pharmacist, interview**

"I would need to go into Ovid, and search Medline via Ovid. Which is fine but not ideal... because I've not been using it, it's easily forgotten" - **Librarian, interview**

## 2.3.4. Unmet needs and current workarounds

### 2.3.4.1. Some users expressed that they are not always able to access everything that they need

Users reported that they have unmet needs around access to resources. Some users feel that they do not have access to sources of information on specific topics such as management.

"Management and quality improvement type stuff, you know we just don't have access to enough of those resources" - **Librarian, interview**

"I'm not thinking that there's millions of things that we're missing out on, but I think it would just be nice, it would just be more reassuring, to know that if there was anything broader, that we had that slightly broader range of coverage and could search. Things like management, and HR, social care, research methodologies... ..technology, IT, informatics literature... ..healthcare economics" - **Librarian, interview**

"It would be useful to have direct access to different journals" - **Research Officer, interview**

"[Sometimes] we haven't got access to something that we might be able to look at that would help us find something useful" - **Librarian, interview**

Other users expressed a desire for easier to use help functions and help content written specifically for expert searchers.

"Easier to use help function... it would be nice if you could divide it up [help content] for your simple user versus your advanced user" - **Pharmacist, interview**

"Please consider that we also have to teach others to search, so decent help materials are key" - **Librarian, user needs validation survey**

Some users described workarounds that they use when they have problems with accessing information.

"For some of them [articles] I was just getting the abstract and some keywords... I had to go to the online library system of the University of Plymouth... I had to look for them there" - **Masters student and Consultant Psychiatrist, interview**

"If we don't have access to any particular journal... I can always just ask and somebody somewhere might have access to it" - **Librarian, interview**

#### **2.3.4.2. Some users suggested that additional filters and limits would be helpful**

Some users reported that it would be useful to have additional filters and limits when carrying out expert searches.

"If there's any kind of filters for themes, or years... that can be useful" - **Librarian, interview**

"Largely we just get English language coming back but you might want to put those sorts of limitations on" - **Health Technology Analyst, interview**

#### **2.3.4.3. Some users would like to be able to search for non-clinical information in one place**

Users noted that they currently have to use different resources to access non-clinical information and grey literature. They expressed a desire to be able to search for this type of information within a single interface.

"If there was somewhere, one place that could have that kind of NHS management information... ..that would make my life a huge amount easier because I wouldn't be trawling through lots of different websites" - **Librarian, interview**

"A better database of guidelines, international and national guidelines, would be really useful" - **Librarian, interview**

#### **2.3.4.3. Some users suggested that it would be helpful to have citation searching features within the search interface**

Some users noted that it would be useful to have citation searching or related article searching features within the search interface.

"It would be quite good if HDAS could do something like that, an in built kind of citation matching tool" - **Librarian, interview**

In the user needs validation survey, one participant (other library and information professional) indicated that a "find similar article function" would be useful.

Existing citation matching tools or related article search functions were viewed positively.

"I love the single citation matcher" [in PubMed] -  
**Librarian, field visit**

"You can do like a related article search on Mendeley and that's deal useful, especially if somebody sends you a paper and says I want things like this" - **Librarian, interview**

#### **2.3.4.4. Some users would like to be able to share live searches with others.**

Some users explained that when working collaboratively on a search with other team members, it would be helpful to be able to share live searches and work on searches in the same interface.

"If she [colleague] could ping me over the live search, and I would then be able to go through it, that would be useful" - **Health Technology Analyst, interview**

"It's easier if you've got a team of you working on something if you're using the same interface" - **Librarian, interview**

When tested in the user needs validation survey, there was a medium level of overall need for sharing live searches with others inside the NHS. There was a low level of overall need for sharing live searches with others inside the NHS.

However, one participant in the user needs validation survey felt strongly that this would be useful for them. This suggests that while the overall level of need for such a feature is low or medium, a small number of users may have a high level of need for this.

"The sharing of live searches would be a game changer so I am glad to see it has been raised here. I have asked again and again whether this would be possible. When we run searches for clinicians we could work far more closely while developing search strategies and for the clinicians who like to attempt their own searching, they can run it by us for a library perspective. Please, please prioritise the sharing live searches." - **Librarian and Masters student, user needs validation survey**

One user described a workaround that they and a colleague use when working on searches together.

"If [colleague] does a search for me, she can't share that search directly with me, she has to output it as a PDF or Excel" - **Health Technology Analyst, interview**

## 2.4. Validating the user needs

Survey respondents were invited to validate a list of 22 user needs identified from the user interviews, field visits, diary studies and a user needs workshop.

Full data is in the User needs validation survey.

169 **users** completed the user needs validation survey:

- 101 librarians
  - Clinical, corporate, embedded or outreach librarian
  - Other library and information professional
  - Academic librarian
- 48 healthcare professionals
  - E.g. Clinical Psychologist, Consultant Psychiatrist, Pharmacist
- 15 PhD and Masters students
- 11 Healthcare Researchers

Some users who completed the survey had more than one role.



## 2.4.1. Analysis method and outputs

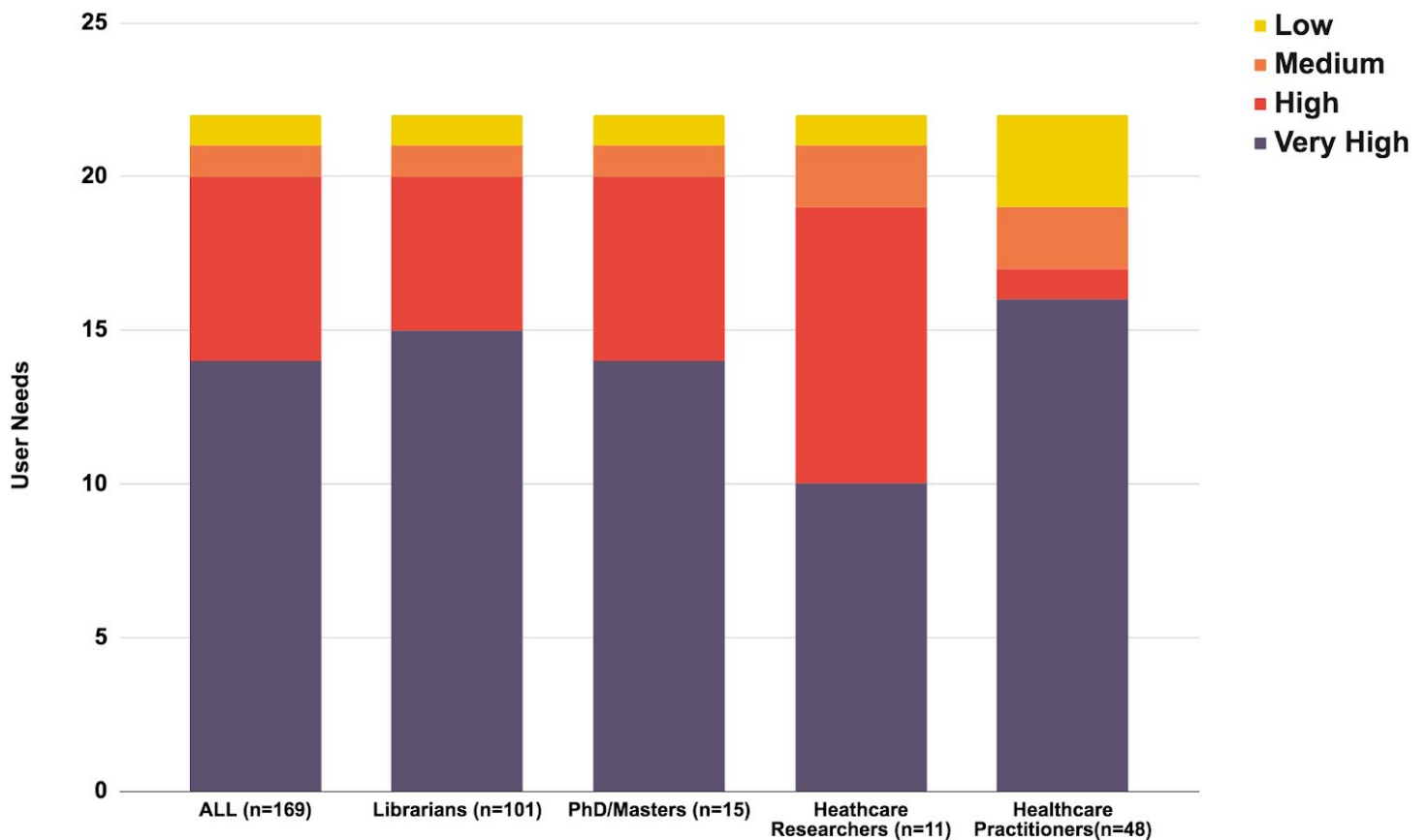
22 user needs were scored by users on a range from **0 - I have no need** to **4 - I definitely need to...**

(Example) *...be alerted when new features are added to search interfaces so I can understand how these features work*

Each need was then categorised into **Very high, High, Medium and Low priority user needs** depending on the average score of the responses.

Key: **yellow = Low need, orange = Medium need, red = High need, purple = Very high need**

The levels of user need are shown in the table below.



The level of response to the user needs validation survey was very good.

However the overall response in terms of numbers of users from the PhD and Masters students and the healthcare researchers was low. These users appear to be a small group within an already relatively small group of expert searchers.

### **The overall need of a service is high**

From our experience of running similar user research in the public sector (including online, paper, data, information, voluntary and mandatory services within and outside health) the general level of user need identified during this research is higher than average.

### **Lower need around sharing live searches**

When users were asked about the need to share live searches so they can easily collaborate on searches with other people within or outside of the NHS, the overall level of need came back as low/medium.

However, although there was a low/medium level of need overall, some users did report a very high level of need to collaborate on live searches.

## 2.5. Prioritising the user story backlog

The evidence from this survey and other user research was used by the Health Education England team to directly inform their initial round of **user story prioritisation** (see output 9: Users stories backlog).

A	B	C	D	E	F	G	H	I
ID	As a... [role]	I can... [USER STORY]	Theme / component	Priority	Survey yes/no	Validated level of need ALL	Validated level of need Librarians	Validated level of need PhD/Masters
8	Healthcare practitioner	See the information source in my search results so I can decide whether it will be useful to me	Filters and limits	MUST	Yes	VERY HIGH	VERY HIGH	VERY HIGH
9	Healthcare practitioner	See an indicator of the quality of an evidence source in my search results so I can decide whether it will be useful to me	Filters and limits	SHOULD	Yes	HIGH	HIGH	HIGH
10	Health Technology Analyst	Exclude results by country so I can only see the results that are relevant to me	Filters and limits	SHOULD	Yes	HIGH	HIGH	HIGH
11	Librarian	Format my search results before exporting them so I can present them in a way that suits me	Managing search results	MUST	Yes	VERY HIGH	VERY HIGH	VERY HIGH
12	Librarian	Organise my search results before exporting them so I can present them in a way that suits me	Managing search results	COULD	Yes	VERY HIGH	VERY HIGH	VERY HIGH
13	Librarian	Perform a keyword/thematic analysis on my search results before exporting them so I can break topics down into subcategories	Managing search results	SHOULD	Yes	HIGH	HIGH	HIGH
14	Masters student	Access full text articles directly from a search of	Managing search	MUST	Yes	VERY HIGH	VERY HIGH	VERY HIGH

Image: screenshot from the validated and prioritised user story backlog

# 3. Journey and experience mapping

During the user research we mapped out 3 expert search journeys:

- 1) Librarian working on a systematic review
- 2) Healthcare researcher developing a research grant application
- 3) PhD student working on a literature review

The evidence gathered through this process was used to inform the research findings.

In particular, these journey maps show that there are several different stages involved in these types of expert searches. As shown in the maps, there are a number of additional roles that may be involved in these searches, including library users, academic supervisors, and clinicians.

The maps highlight that a wide range of different tools are used in each of these different searches, including search interfaces, reference management software, and data analysis software.

The maps also reveal current pain points for expert searchers in each journey.

PDFs of each of the journey maps are available as an output of the research.



Image: journey mapping exercise from our user workshop

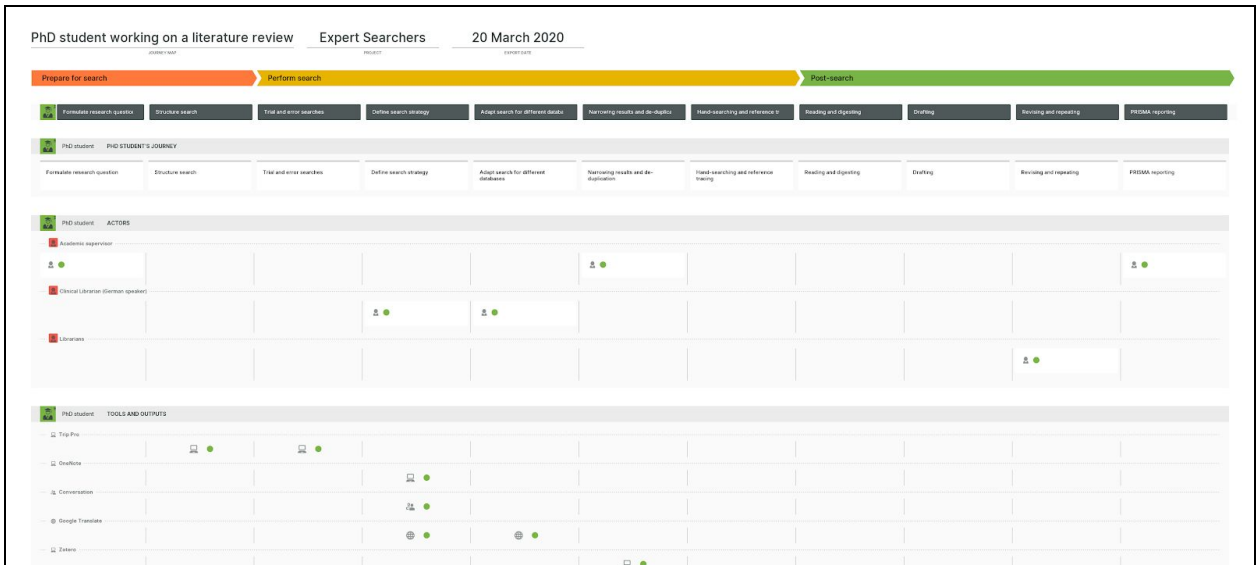


Image: screenshot of a digitised journey map (available as an output of the research)

# 4. Annex I - user research

## 4.1 Research sources

Some extra material and information has been reviewed during the user research.

1. London, Kent, Surrey, Sussex Regional search guidance
2. Conversation with Fran Wilkie, Service manager, NICE
3. HDAS User Statistics with "Heavy Users" - NICE

## 4.2 User participants (in moderated activities)

All the users below were involved in phone interviews, field observations, diary studies or the user needs workshop.

### 4.2.1 User interviews

1. Principal Physicist
2. Knowledge Management Lead
3. Clinical Librarian
4. Knowledge Specialist
5. Head of Radiotherapy Physics
6. Knowledge Services Manager
7. Clinical Librarian
8. Consultant Psychiatrist
9. Research Officer

10. Health Technology Analyst

11. Clinical Librarian

12. Regional Medicines Information Manager - Governance & Training

#### 4.2.2 Workshop

1. Librarian
2. Clinical Librarian
3. R&I Lead for Physiotherapy; Clinical Specialist  
Physiotherapist Neurological Rehabilitation; Independent  
and Supplementary Prescriber
4. GP Educator Pathway Manager; PhD student
5. Health Literacy Project Manager; PhD student

#### 4.2.3 Diary studies

1. Clinical Librarian
2. Electronic Services Librarian
3. Speech Therapist

#### 4.2.4 Field visits

1. Clinical Librarian Service Manager
2. Head of Knowledge Services
3. Clinical Psychologist

# 10. Annex II - user research outputs

These outputs have been delivered in accordance with the project proposal:

1. Kick-off meeting outputs - (captured in Basecamp:<https://3.basecamp.com/3606110/projects/11275496>)
2. Detailed notes from user interviews
3. User needs workshop run sheet, prompt sheets, and photos
4. User proto-persona profiles
5. Journey map 1: Librarian working on a systematic review
6. Journey map 2: Healthcare researcher developing a research grant application
7. Journey map 3: PhD student working on a literature review
8. Field observations notes
9. Diary study transcripts
10. User story backlog (including validated user needs)
11. Show and tell presentation
12. Report (this document)