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REFLECTION

Applying user centred design to Archives

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ABSTRACT
The City of Sydney adopted a user centred design approach to transform its archives systems and processes to meet user needs. Key to the transformation was a project to design and implement a new archives management system, complete with digital preservation functionality and a publicly accessible user portal. This paper examines tensions between archival practice and the user experience, and what actually happens when the user is placed at the centre of design initiatives.

KEYWORDS
Word; user-centred design; systems design; archives; metadata

Introduction

Archivists know that user-centred design is a worthy aspiration. However, in practice, tensions between archival practice and user experience mean that archival systems and practices can be intimidating and difficult for users to comprehend. At the City Archives we took the opportunity presented by the introduction of a new archives management system to adopt a user-centred design approach to system design. This paper explores our approach and some of the lessons we learned.

City of Sydney archives

The City of Sydney is a local government authority which covers around 26 square kilometres including the central business district. The City Archives is both a business archive of the City from 1842 and a collecting archive. It holds over one million catalogued items.

The City is committed to open and transparent access to information. About 5,000 written requests for information each year are managed by the Archives and Information Access teams. Long term programs, such as a volunteer program and a digitisation program help to increase access to our archives.

The CAMPAS project

In 2016 the City embarked on a project to implement a new archives management system. The project became known as CAMPAS (City Archives Management and Public Access System). Prior to this the City Archives was using 13 different systems to manage the collection and key systems were no longer supported. We planned to merge

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the systems into one which would manage all metadata and digital objects and provide a user-friendly web portal to encourage more self-service. After a competitive tender in 2017, we chose the New Zealand product, Recollect.

Redesigning the archives

From the outset of our project, we were determined to approach systems design in a user-centric way. In 2012 Arne van Oosterom from Design Thinkers stated:

> If libraries are not willing to become obsolete then that is exactly what'll happen to them. Throw out the library completely, start with value and how to co-create it, and then you're designing the new library … get people engaged in your service and it will grow naturally.[1]

The same can and should be said of archives. Archival systems are generally designed for archivists and perhaps for professional researchers. They tend to be challenging or incomprehensible to most other users.

Given this rare opportunity, our project team wanted to put their preconceptions aside and reimagine how things could be. Instead of requiring users to access archives the way archivists do, we wanted to base our system design on who our users are and what they want and expect. We agreed early on that if any decisions came down to what was best for the archivist, or best for the user, user needs would prevail.

Archivists spend a lot of time capturing and preserving archives, and these are certainly essential activities, but if we do not provide access we do not achieve true value in our archives. In order to keep 'ease of access' at the forefront of our design decisions the project team created the Archives Value Triangle (Figure 1). This triangle illustrates that streamlined, proactive access forms the basis of our primary goal as archivists.

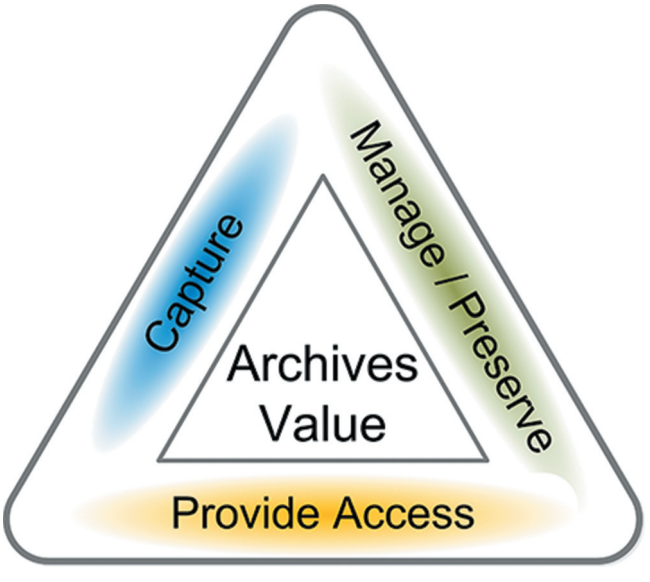

Figure 1. Archives value triangle.

If our existing or potential users want or expect a Google type user interface or even an Ebay type interface then that is what we should give them. In the information marketplace archives are a commodity destined for public use.

Process methodology

The diagram at Figure 2 represents the user-centred design approach. Our project did not just follow this process as a single linear path, different aspects of the design followed this methodology separately and at different times. Several times we were able to prototype a particular function and went to testing with users only to discover they found it unusable.

Empathise

Empathise is perhaps the most critical and challenging part of the methodology which involves learning about your audience and their needs. It is challenging because we tend to approach design through the lens of our own experience and assumptions and this unwittingly influences our decisions.

A common trap is for archivists to assume we know our users and what they want. The reality is we know some of our users and some of the ways they look for information. But we do not understand all their needs and wants and there are many potential users we could be inadvertently excluding through our design.

We started with trying to understand who users are and what they want and expect. We examined a service review conducted in 2018, which analysed the types of information access requests received by the City. This revealed that over 80% of our existing users

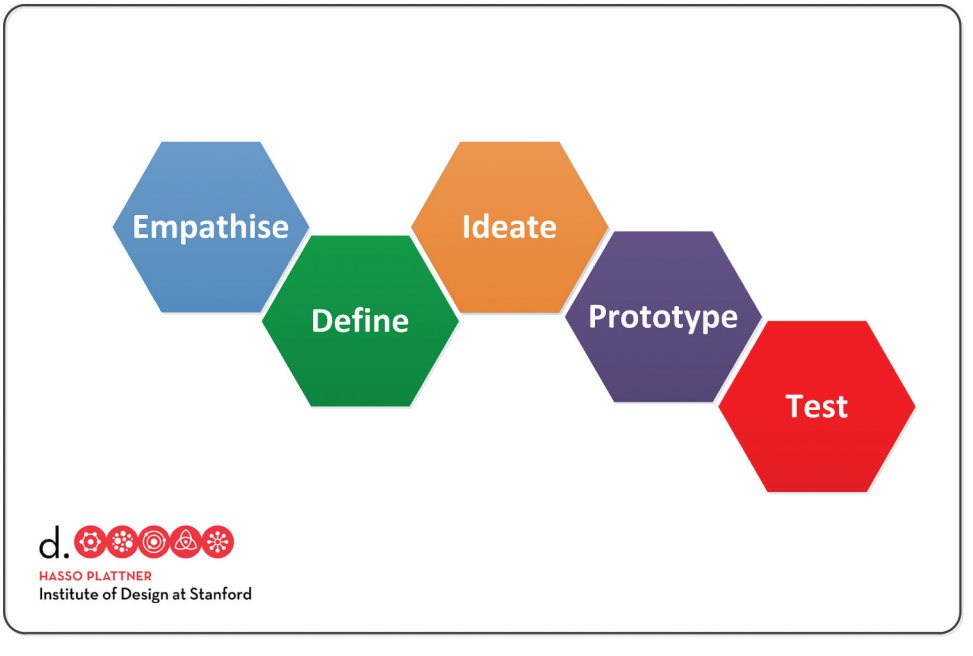

Figure 2. Design thinking process (Design School, Stanford University).[2]

were interested in locations – buildings, streets or suburbs. We also reviewed a history and archives audience development survey conducted by the City's History Team. Workshops with the vendor identified key user groups and considered personas and their needs and expectations.

Empathise goes beyond identifying personas however. You also need to consider what are the archives that each persona is looking for? What is the best way to get them to their goal? What would frustrate them?

Define/ideate/prototype

In the define step we asked ourselves what are the main barriers to the public accessing the collection.

- Can someone with no understanding of the collection or archives find what they are looking for or at least something useful/interesting?
- What is the preferred way that different users will access the collection – browse, search, map interface? Can they access these from the home page?
- Would any of our users prefer to search on contextual entities such as functions, series, etc?
- Does everything in the collection need to be searchable and available to the public?
- Is cost a barrier to users requesting high resolution copies of archives?
- Is the process for requesting copies too complex and presenting a barrier?
- Are finding aids necessary? Do users ever read them?
- Are users mainly interested in what they can view now, meaning those items that have been digitised?
- Does the public understand the language of the system? E.g. do they know what OCR is? Do they understand the difference between searching the title field and all fields? Do they want or need to know?

Solutions:

- Display items only in search results – navigate from items to contextual records for more information
- Only release parts of large collections to the public
- Do not charge for high resolution digital images if they already exist – self-service to download directly from the site
- Charge a flat fee per file for digitisation where a digital copy does not exist – but make it affordable
- Allow whole of file digitisation only – i.e. no scanning of individual pages
- Release items to the public once digitised
- Provide key access points on landing page:
  - Search
  - Browse by collection (including all previous web resources) – targets many of the key persona requirements
  - Browse by map

- Tailor landing pages for collections with the minimal descriptive information required to understand the particular sub-set of archives
- Include a filter to only show items with digital objects. Note to developers – please do not title this filter 'show items with digital objects'!

Questions arose along the way such as:

- How important is it to have a welcome statement on our home page? Is the banner text, 'Archives and history resources', sufficient?

We also settled on the following design rules:

- Users can engage without knowing anything about the collection or having previously used archives
- When searching and browsing users will only see **Items** (context is present but under the surface to enhance the user experience – not dominate it)
- The system will be designed to meet user expectations – with the public user taking precedence over archives staff
- Simple, uncluttered page layout will be provided with minimal text focused on what the user **needs** to know, not what they might want to know.

Other rules:

- Make it visually pleasing – the first point of contact is critical
- Separate the concepts of search-ability and access – Items can be accessible without being searchable (e.g. individual documents within a registered file)
- Do not release everything, it is okay to pick and choose. For example, only a quarter of a newly acquired collection of 40,000 transport images were released to the public – users do not want every search to show buses!

Overwhelmingly the feedback received from users is that they just want to find items. They do not care about functions, agencies, boxes or even series. But we all agree context is important. So we needed to focus on item-centric results – this is what the public wants – but make contextual information visible at the item level to enhance the understanding of items.

For personas, we identified the main types of information they seek. They are summarised in Table 1 – Identified Personas:

Table 1. Identified personas.

Persona	What do they want
General public	property enquiries (photographs, maps, plans, house histories) and some family history
Academic	historians, post grad students – intensive access for defined period on a narrowly defined subject
Journalist/media	anniversaries, then and now comparisons, events
Commercial, cultural heritage	heritage architects – previous land use, archaeological reports, conservation management plans
Property researchers	real estate agents, people buying a property, conditions of use

The history and archives audience survey identified three levels of user: skimmers, delvers and deep divers (see Table 2). Applying the empathy approach we considered how users at each of these levels access the archives. It was not surprising that none of our users access archives in the same way as archivists!

This raises one of the greatest challenges in designing for the user. If you have different

Table 2. Skimmers, delvers and deep divers.

	User %	Service level	Access methods
Skimmers	98%	• self-service • unlikely to write to the City to request information • highly unlikely to visit the archives or speak to an archivist	• browse (category or via interactive map) • 'Surprise me' • navigate from a general web search (eg Google)
Delvers	2%	• self-service • more likely to write to the City to request information • some assisted access	All of the above plus: • simple search • search within categories • apply simple filters • enter via TROVE
Deep divers	<0.1%	• self-service • assisted access • high level of assistance from archivists	All of the above plus: • detailed search (including location specific) • navigate via relationships • search within categories • apply complex filters

user levels and types, how do you design a system that caters to all needs? Like other archives, our previous key archival systems focused on the deep divers, usually professional researchers, even though they make up less than 1% of our users!

Then came some more challenging questions:

- What do each type of user really expect/want from the archives?
- Do we assign different values to types of user? Do we feel that 'deep divers' are the 'serious researchers' deserving more of our attention, even though they are in the minority?
- Who do we cater to most in how we present our metadata?
- Can we ever design a system whereby deep divers can completely self-service?

Clearly we needed to shift our focus to cater more for skimmers and delvers, without excluding the deep divers. The reality is that deep divers will nearly always require a higher level of staff interaction.

In the ideate and prototype stages we designed direct entry points for each of these personas through 'collections' browse buttons, map interfaces, simple search and defined search within sub-collections (Figure 3).

Analysis of online users

Analytics can provide some insight into our users but can raise more questions. For example:

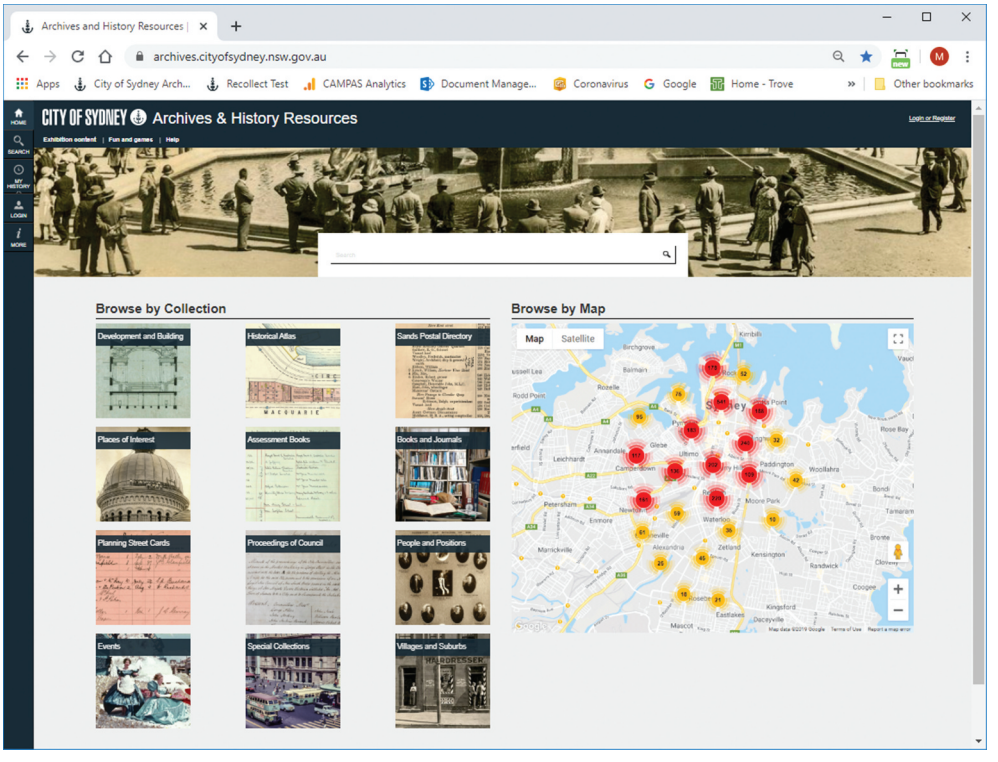

Figure 3. Home page of archives.cityofsydney.nsw.gov.au.

- The City responds to about 5,000 written requests for information per year but can we safely extrapolate data about those requests and apply it to our other users or potential users? Or will that just give us a view of the delvers and deep divers?
- More than 80% of written requests are location-centric. Is this an indicator that structured geospatial metadata needs to be integral to the majority of our collection? Geotagging is mostly a manual process since there is no existing metadata for it, so how do we build that metadata for one million records?
- We knew which of our systems were most/least popular (Figure 4). Did this reflect the ease or difficulty of access or the popularity of the content itself? Our key archival system, Archives Investigator, represented only 2% of online use. What does that tell us?

Analytics were available but very limited and inconsistent across systems. Of our online users, we had 540,000 hits per year but:

- Did they get what they wanted?
- Was it a good experience?
- Will they visit again?
- Did they try to use one of our systems and give up?

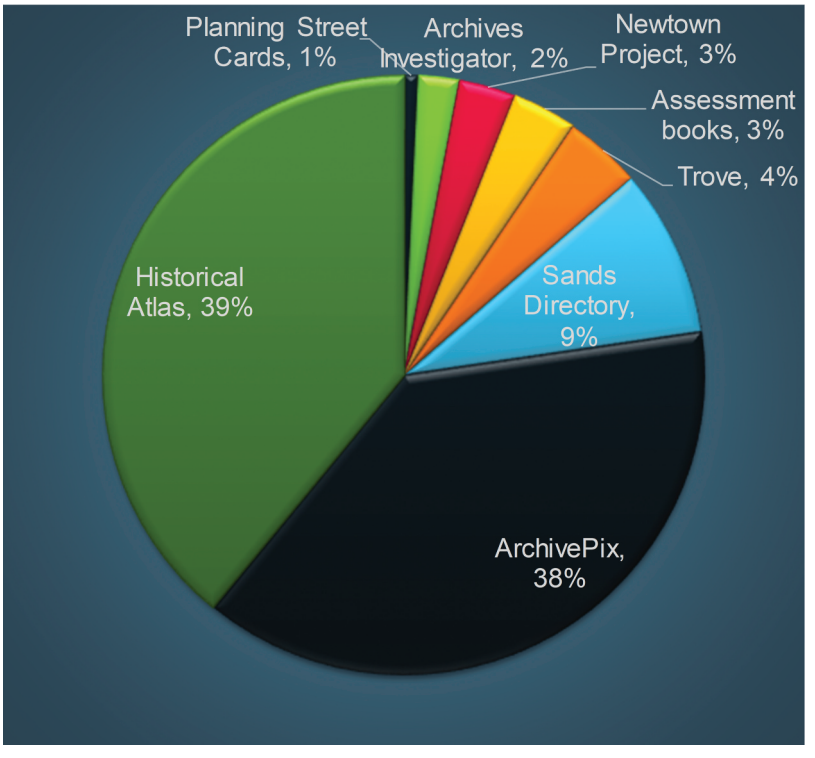

Figure 4. Previous systems and levels of use.

When defining, ideating and prototyping we were also conscious of the need to be in regular contact with our users to validate our thinking. A common problem in archival system design is that users do not see anything until the system is completed. By the end of a process, you have invested so much time in making your designs a reality, you can become quite resistant to listening to your users. Users need to come with you on the design journey.

It is worth noting that defining issues and opportunities does not stop once we go live. The whole process from empathise to test should be constantly repeated – with the team asking:

- What is the current user experience?
- Is the system giving them what they want?
- How can we improve their experience?
- What sort of feedback are we getting?
- How can we help them to engage?

Making the most of metadata

Much of our user-centric system design will be of little use without the right data model. The starting point in defining our metadata structure was to adopt the Australian Series System and existing standards, such as ISAD-G, ISAAR-CPF and RiC. But we needed to explore our metadata needs more deeply to meet user expectations. We asked ourselves:

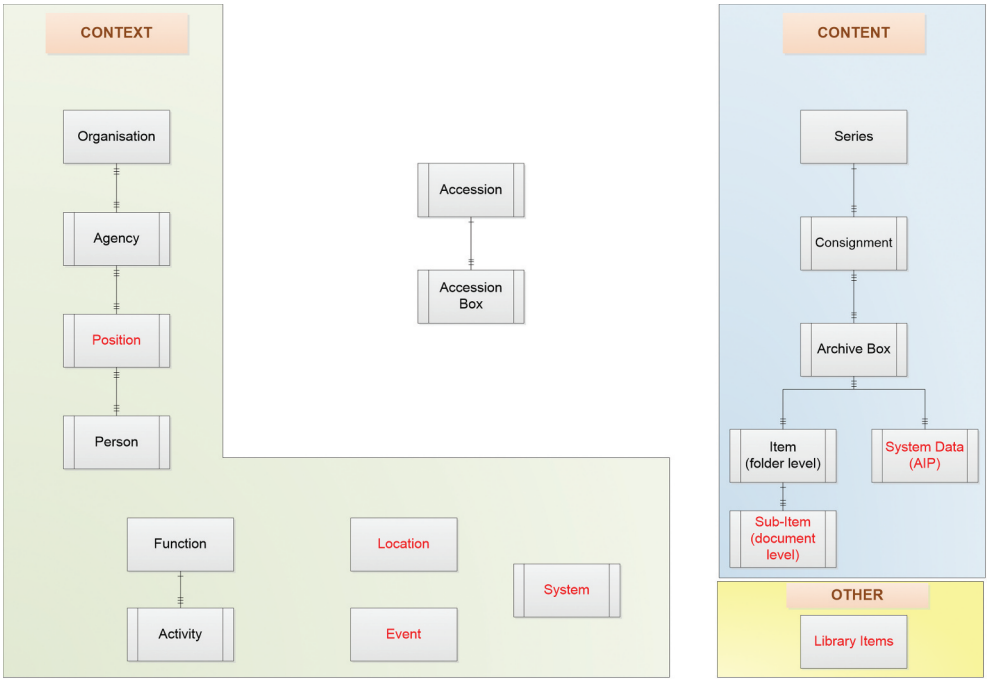

Figure 5. Data model based on Australian series system.

- What metadata would facilitate access to our specific collection?
- What context specific metadata should we include? For example, for building plans is it useful to know whether the building is extant?
- How can we highlight certain items that would help users to engage with the collection?
- What metadata does the public want to see and what should we hide? We don't always hide metadata for sensitivity reasons, we need to ensure the user is not overwhelmed by too much data.
- How can our metadata support well-defined, controlled archival business processes?
- Can we use metadata to provide greater visibility for donated collections?
- What metadata is necessary for filtering search results?

In defining a new data model for the archives (Figure 5) it was clear we needed to change our current descriptive processes. This necessitated new business rules:

- Title field limited to 100 characters – The Title field is what users see in search results so it must be clear, consistent, succinct and accurate.
- Transcription vs Description – File titles can be obscure, misleading and often meaningless. Why do we present that to a user? The aim is for archival *description* not archival *transcription*.
- Consistent fields across all item-like templates – While we created a number of different item templates in the new system we ensured that item level description kept the same fields. This means there will often be empty fields but users

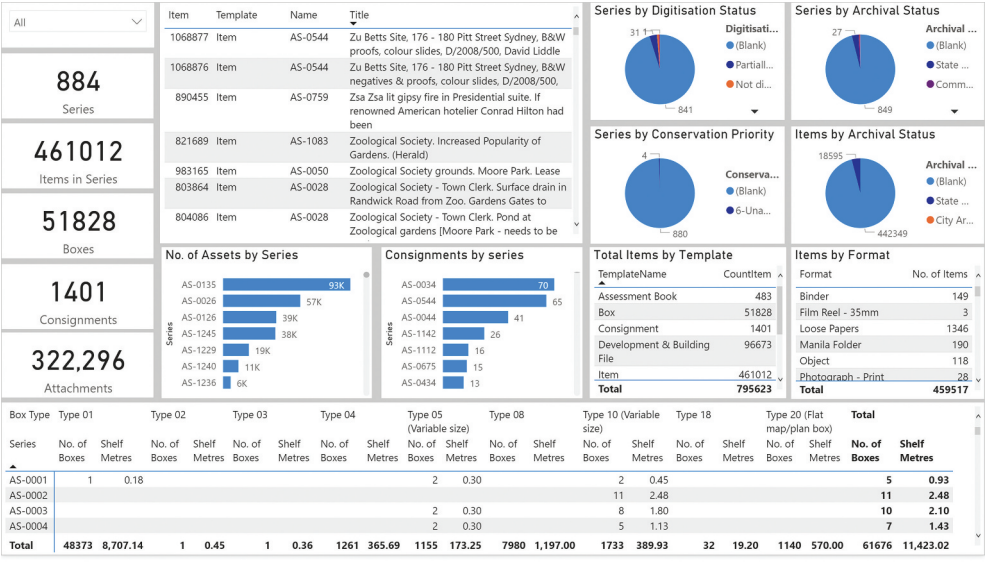

Figure 6. PowerBI dashboard for new system.

do not see them. For example, videos will have a duration field, irrelevant to a photograph.

- Metadata has value in itself – For example, if you geo-locate a building plan, identify the architect and determine if the building is extant, a member of the public can use that metadata without needing to look at the item.

With metadata, as with our other decisions, it was important to strike a balance between what makes sense to the public user and what is required by archivists to effectively manage the collection.

Design for the future

Already we are building more functionality around the system. The most recent example is data analysis using a PowerBI dashboard (Figure 6). The screenshot above demonstrates that we do not yet have the metadata to support all reporting measures but we have the structures in place to capture that data over time.

Conclusion

Freeman Tilden, a pioneer and innovator in heritage interpretation, said in 1957:

> . . . you sometimes note an impatience on the part of a specialist that the public does not show sufficient interest in his assemblage of information as such. He is likely to conclude that the average person is somewhat stupid. The opposite is true. It is a sign of native intelligence on the part of any person not to clutter his mind with indigestibles.[3]

Our systems design process at the City of Sydney has helped us to realise that we need to shift our approach to access away from expecting our users to 'pass the test' of navigating through the confusing, impenetrable network that is archives control before they can get

to the holy grail of the information they require. Our role must be to **facilitate** access not to **frustrate**.

Our value proposition is for people to engage with our collection whether that is viewing one item for a brief moment or spending hours delving deeper and deeper into our collection. Both are valid and both experiences achieve our chief value proposition of providing access to archives.

Notes

1. Arne van Oosterom and Design Thinkers, *A speed date with design thinking*, 2012, available at <https://www.slideshare.net/zaana/a-speed-date-with-design-thinking-11491017/36-so_design_thinkingwhat_next>, accessed 31 May 2020.
2. Design School, Stanford University, *User centred design*, available at <https://blog.movingworlds.org/human-centred-design-vs-design-thinking-how-theyre-different-and-how-to-use-them-together-to-create-lasting-change>, accessed 31 May 2020.
3. Freeman Tilden, *Interpreting our heritage (Third Edition)*, 1957, p. 23, available at <https://is.muni.cz/el/1421/podzim2017/MUI_338/Interpreting_Our_Heritage__Chapel_Hill_Books_.pdf>.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Michael Smith has more than 25 years' experience in the archives and information management profession. He has been the Manager Information Management at the City of Sydney since 2018 and was City Archivist for the City for four years prior to this. Before moving to the City of Sydney Michael managed the Records and Archives Management Services unit at the University of Western Sydney for more than 12 years. He started his archives career, as so many have, at the State Archives and Records Authority of NSW. Michael is passionate about archival metadata!

Janet Villata has been an information professional for nearly 30 years. She has a Masters in Information Science and a Diploma in Archives Administration. Janet's early career was with the State Archives and Records Authority NSW, specialising in digital recordkeeping. She has also worked in information management for all levels of government. Janet joined the City of Sydney in 2015 as an Information Analyst. In 2018 she was appointed as the City Archivist, responsible for a team of archivists and volunteers and the introduction of a new archives management system.