



Library Collections in the Life of the User: Two Directions

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Abstract

The paper considers how the changing nature of research in digital environments is reshaping the nature of library collections and services in academic and research libraries. It describes two central directions, each a response to the centrality of the user in a network environment. First, the library has an increasing role in managing the research and other outputs of the university (the inside-out collection). Second, the library is facilitating access to a broader range of local, external and collaborative resources organized around user needs (the facilitated collection).

Key Words: Library collections; research workflows

1. Introduction

Collections have been central to library identity and have shaped its organizational and professional contours (Dempsey, Malpas, & Lavoie, 2014). As learning and research practices evolve in a network environment, the discovery, curation and creation of collections also evolve.

The changing pattern of library collections work raises large issues about library roles in the custody of the cultural and scholarly record, in the discovery of—and access to—that record, and in ongoing policy debates about scholarly communication. In this short article, I am going to focus on two

directions only, which emerge in a digital, networked environment. These become more central as the focus of collections activity shifts away from the procurement and arrangement of a locally assembled collection to a more diverse range of activities.¹ My focus is on research and academic libraries, although some of what I say may be more generally applicable.

The first direction is a response to the **reorganization of research work by the digital environment**. The second direction is a response to **the reorganization of the information space by the network**.

1. **The inside-out Library.** Creation happens in a **digital** environment, with an interest in the process, as well as the products, of research and learning. Libraries increasingly support the creation, curation and discoverability of institutional creations (research data, pre-prints, scholarly profiles, academic profiles, digitized special collections, ...). The university wishes to share these materials with the rest of the world.
2. **The facilitated collection.** Increasingly, the library does not assemble collections for local use, but facilitates access to a coordinated mix of local, external and collaborative services assembled around user needs and available on the **network**.

The long-term transition from print to digital and from local to network is bound up with a series of organizational and behavioral changes in how materials are created and used.

Library collections – and library organizations and professional practices—were initially strongly shaped by a **print logic**. This required the distribution of print copies to multiple local destinations. In this way, materials could be closer to the user, to allow immediate access. This had two consequences. First, collections were assembled on a ‘just in case’ basis. And, second, the size of the collection was strongly associated with the goodness of the collection. The larger the local collection, the more potential local requirements could be met. The library collection was an **owned** collection. This ‘localness’ was an important shaping influence on our collections and still influences our thinking about them. And, certainly, the size of a locally owned collection is still important in popular perceptions of ‘goodness’. Just look at library job adverts or university promotional materials for potential students where it is not uncommon to mention collection size.

As we move to an environment which is increasingly networked and increasingly digital, the local assembly of materials in this way no longer meets all the information needs of an institution. In order to support its students and faculty in their creation and use of information resources, the library needs to think about other services also.

In this context, the two directions I note are of growing interest.

First, research and learning materials are created and used in digital environments. In the print model, the products of research and learning were fixed publications, produced when the work had been completed. The actual process of research was not visible, nor were intermediate outcomes such as research data. Now, in a digital, network environment these intermediate outcomes may be visible and sharable. Similarly, learning materials become visible and sharable. In parallel, workflow support becomes more important as the work of research is enacted in this digital environment. Research is shaped by and shapes evolving workflow support services.

In this context, there is a growing role for the library is assisting with the creation and use of institutionally produced materials. This is David Lewis's summary of this direction: "... supporting knowledge creation and the curation and preservation of local content" (Lewis, 2016, p. 145). Furthermore, there is an important role in effectively disclosing this content to the outside world. This interest is not limited to research or teaching outputs only; it extends to researcher identity, profiles and reputation management. For many researchers, there is a growing alignment between identity, workflow and outputs (think of profiles in Google Scholar, ResearchGate, and so on).

This emphasizes an important distinction, which will cause libraries to think differently about how they organize and direct attention to support research. This is a distinction between **outside-in** resources and **inside-out** resources (Dempsey, 2015a). This overlaps with, although is not the same as, Rick Anderson's discussion of commodity and non-commodity resources (Anderson, 2013).

The dominant library model of collections has been an outside-in one, where the library is buying or licensing materials from external providers and making them accessible to a local audience. This is a natural model where the central, library acquisition of commercially available materials reduces costs

(transaction and financial) across the institution. Libraries will continue to explore licensing and acquisition strategies to favor the institution.

In the inside-out model, by contrast, the university, and the library, supports resources which may be unique to an institution, and the audience is both local and external. The institution's unique intellectual products include archives and special collections, or newly generated research and learning materials (e-prints, research data, courseware, digital scholarly resources, etc.), or such things as expertise or researcher profiles. Often, the goal is to share these materials with potential users outside the institution.

Second, the information environment is reconfigured by the network. In this context, 'localness' is no longer a determining influence – effective usage no longer requires materials to be distributed to multiple locations close to prospective users. And, in fact, the network encourages the opposite trend—towards network level concentration and specialization.

Consider the journal literature. This was effectively externalized to a series of network resources—first abstracting and indexing services, then e-journals, then ebooks.

More broadly, a whole range of new information resources has appeared on the network, within different business and organizational models. Consider, for example in Figure 1, the following external network resources which have become routine parts of our information behaviors.


Finally, libraries themselves are recognizing a shared interest in collective collections – an aggregate view of collections, print or digital, across their institutions. Think of Hathi Trust or Trove, for example.


This network context means that the library will increasingly **facilitate** access to a variety of information resources, some collaboratively built by libraries, some provide by external parties.


This trajectory – from local to network, from print to digital – is gradual, but clear. Of course, it is not even or complete. In fact, one of the issues for the library is that it has to manage resources at various stages of evolution, and to serve users with varying expectations. It also has custodial and discovery responsibilities across a range of materials. Against this background,


Fig. 1: Network resources.


- arXiv, SSRN, RePEc, PubMed Central (disciplinary repositories that have become important discovery hubs);



- Google Scholar, Google Books, Amazon (ubiquitous discovery and fulfillment hubs);



- Mendeley, ResearchGate (services for social discovery and scholarly reputation management);


- Goodreads, LibraryThing (social description/reading sites);


- Wikipedia, Yahoo Answers, Khan Academy (hubs for open research, reference, and teaching materials).


- GalaxyZoo, FigShare, OpenRefine (data storage and manipulation tools)


- Github (software management)



it has been interesting to see libraries begin to manage down local print collections and invest in shared print frameworks (Dempsey, 2013). Library space is being reconfigured around user experiences, rather than around collections.

This is one aspect of what I have characterized as a shift from thinking about **the user in the life of the library** to thinking about **the library in the life of the user**. In this context, the former involves thinking about building collections for potential use. The latter involves thinking more clearly about how we get into the flow of users' research and learning practices, and about how those practices are evolving. The inside-out library is about more deeply engaging with the creative life of the university, mobilizing library services and expertise to support the creation, curation and discoverability of institutional assets (research and learning materials, researchers, ...). The facilitated collection involves assembling a coordinated mix of local, external and

collaborative services around user needs. This is driven by research and learning needs, rather than by anticipative collection development.

2. Direction 1: The Inside-Out Library – Support for Creation, Curation, and Discoverability of Institutional Resources²

Creation activity now happens in a digital environment, with a growth of interest in the process as well as the products of scholarship and learning. Digital workflows generate a variety of outputs, including research data, course materials, video, and preprints.

Support for digital scholarship and research data management is emerging as university services around content creation join those around discovery or consumption. There is a growing interest in sharing research and learning outputs, research expertise, and other institutional assets with external users. Together, these are becoming an important focus for academic libraries.

The level of support provided will depend on the university's scale and mission. The level of attention to inside-out resources in this way will become an important differentiator between libraries (and the universities they support). Research institutions, specialist libraries, and others with a mission to share their resources with the world will focus more attention these services. Institutions more focused on supporting learning and student success may choose to make less of an investment here.

From a collections point of view, there are several emphases, as the library increasingly engages with resource creation and workflow. Many of these services are in early stages of development: they will evolve and align in coming years, often in collaboration with other campus units.

- **Research data management.** The curation of **research data** has emerged as a major university and library concern. There are several motivations for this, including funder mandates and data re-use. There is a very active community of interest, and an emerging body of best practice (see for example the work of the Digital Curation Centre). The library is potentially a partner in a multi-stakeholder activity across a campus, and services vary from advisory to actual data curation. It is interesting to note the emergence of service

providers of different types to meet a need—FigShare or Dryad, for example, or ICPSR. There are also national initiatives – ANDS and DANS for example, in Australia and The Netherlands respectively. 4TU.ResearchData is an interesting consortial approach, a service collaboratively developed by four Dutch universities.

- **Research information management.** Research information management has recently emerged as a service category (Dempsey, 2014). This refers to the management, evaluation, and disclosure of research outcomes and expertise, which connects in various ways with internal evaluation and management goals, funding policy and compliance needs, as well as with broader reputation management on the web. Often, this is led from the institution’s Office of Research. Additionally, research analytics has become of more interest as institutions assess comparative research strengths, collaborations, or compare themselves to peer groups. Bibliometric support may be one strand of this activity. It is not surprising to see that Elsevier and Thomson Reuters market research information management systems as part of a broader suite of management and evaluation services (Pure and Converis, respectively).
- **Reputation management and effective disclosure.** The effective disclosure of university assets has become an important activity in the context of institutional reputation. There is a strong interest in improving the discoverability of research and learning materials, including special collections. An area of growing attention is researcher profiles, making publications, interests and achievements more readily discoverable. This is an important driver for the adoption of research information management systems, mentioned in the last section. The interest in expertise and research profiles (including the use of researcher IDs like ORCID), and the increased attention to research metrics, make this an area where library support for researchers will grow. At the same time, researchers themselves are using research networking and profiling services to manage, disclose and share their work more widely, as well as to discover the work of others. ResearchGate, academia.edu, and Mendeley are widely used in this way, for example. As noted above, this leads to a blurring between workflow, identity and content, as researchers may manage several profiles and use them to disclose research outputs. Arlitsch, OBrien, Clark, Young and Rossman (2014) write interestingly about

‘new knowledge work’ as libraries engage with how best to disclose the people and outputs of their institutions on the web.

- **Digital scholarship, content creation and publishing.** Libraries are more directly supporting faculty and student content creation and publishing. See for example the various sections of the *ACRL Scholarly communication toolkit* (ACRL, n.d.). Vinopal and McCormick (2013) characterize an enterprise array of standard services as follows: “tools and support teams for activities including high performance computing; geographic information systems; quantitative and qualitative data analysis; data finding and management; the digitization, creation, manipulation, storage, and sharing of media content; repository services; digital preservation; streaming media platforms; digital journal publishing; online collaboration; and intellectual property consultation.” They further note that the library is expected also to support the creation and management of faculty or project-based websites. Many libraries now have organized support in departments for digital scholarship or digital humanities. At the same time, libraries are providing support for the production of learning materials in various ways, a trend that will also become more important as pedagogic models (the flipped classroom, for example) require more use of prepared materials.
- **Scholarly publishing.** Many university libraries provide support for journal publishing on campus, and there are various links with university presses (which on some campuses now report into the campus). Allied to this, some libraries recognize a mission-driven role to support **open access publishing** models. A recent survey of ARL and other academic libraries noted that “The vast majority of library publishing programs (almost 90%) were launched in order to contribute to change in the scholarly publishing system, supplemented by a variety of other mission-related motivations” (Mullins et al., 2012).
- **Transition to open access.** The transition to open access is confusing, with different models and mandates. Institutions are looking at managing compliance, article processing charges, campus bibliography, and so on. The library has a central consultative and service role.
- **Special collections.** Recent focus on distinctiveness has turned attention, if not necessarily additional resources, to special collections and archives and their role within research and learning practice. With

renewed focus on value-based library assessment, there is increased attention to how special collections and archives contribute to research and learning agendas. This has encouraged a stronger focus on how materials are exhibited in the online environment, not just as lists or pictures of 'treasures' but as coherent collections of materials that support undergraduate education and advanced research. The special expertise that curators have traditionally directed toward acquisition and management of collections is increasingly turned 'outward' to help contextualize and characterize the value of institutional holdings (Dempsey et al., 2014).

- **Institutional repository.** While these are now a routine feature of academic libraries, there is ongoing discussion about purpose and scope, incentives for researchers to deposit, and their role within 'green' open access. I have left them to last here, because some of the other developments mentioned above – research data management, research information management, and researcher profiles, for example – have grown up around the repository and may connect to it in various ways. A more consistently patterned relationship between these approaches is likely to emerge, as institutional digital infrastructure takes clearer shape. A couple of points are worth making about the current situation. First, while most repositories are home to versions of research papers, scope varies across institutions. For example, some repositories may take a 'campus bibliography' approach for various reasons, including links to publisher splash pages. Some repositories may include other categories of material, digitized special collections or archival materials, for example. Given the lack of standard methods for designating material types and rights information this may make it difficult for an aggregator of repository content to distinguish scholarly material or to determine allowable actions. Second, there is a close connection between repositories and national education and science policy regimes, so the dynamic of development has been differently influenced in different regimes. For example, where there are national research assessment programs in place, institutional interest in repositories may be higher (MacColl, 2010). Shifts in US federal policy with regard to research funding and access to outcomes will have an impact here resulting in a more organized approach to the management and disclosure of papers, data and other outputs.

Some questions and observations – towards deeper engagement in the process of research

The increasing attention to managing institutional collections from the inside-out has important implications for the library. Three key clusters of issues will require attention: the organization of library systems and services (which become more intertwined with institutional enterprise systems and external service providers); stewardship of the institutional and scholarly record (which will be distributed across internal and external partnerships); and metadata and discovery operations (which will be retooled with a focus on managing inbound and outbound data flows, and maximizing the network visibility of distinctive information assets).

1. **Workflow support.** As research workflow enters the digital environment, a variety of support mechanisms and organizations have emerged, aimed at improving productivity or addressing new needs. Think for example of the companies collected in the Digital Science portfolio. These include FigShare (research data management), labguru (laboratory management), Overleaf (collaborative authoring), and so on. The library has a potentially greater role in consulting about workflow, in subscribing to researcher services on behalf of its users, and in developing new services itself. It is interesting to compare the library role with the developing role of publishers, who are also alert to growing support needs. Publication is one part of the research workflow, so it is not surprising, for example, to see Elsevier add capacity to support more of the research life cycle (it has acquired SSRN, Mendeley and Hivebench on the practitioner side, for example, and Pure on the administrative side). It has grown its research analytics services. Digital Science, mentioned above, is actually operated by publishing group, Holtzbrinck, which owns MacMillan and is the majority owner of Springer Nature. In this way, larger publishers are also extending support for research workflows. As some of these researcher-facing “productivity” services are repackaged as licensed institutional offers, libraries will face important decisions about sourcing and procurement of workflow support services.
2. **Rightscaling.** Until recently, it was usual to provide systems support locally, and digital infrastructure is still fragmented by campus unit, or by type of material (e.g. research data, institutional repository, digitized images, video), or by workflow. However, there is also

a trend for infrastructure to be unbundled and consolidated in specialised platforms, for management, preservation, or discovery. This may be collaboratively sourced (think Hathi Trust, for example) or sourced with some other provider (think of Portico, or, in a different organizational construct, ICPSR). At the same time, faculty and students may use a variety of network services to meet needs in different areas (FigShare, GitHub or SlideShare, for example). As new infrastructure and information service needs emerge, the question of scalar emphasis comes to the fore: at what level, or mix of levels, is it best to address needs? What is the balance between institutional activity and subject-based repositories, for example, in relation to preprints or research data? What is the balance between local preservation activities and collaborative approaches? Think again of research data management, where there are individual, institutional, disciplinary, collaborative and national approaches. Libraries can play a valuable role in assessing the scale at which research support services should be operationalized across and above the institution. In particular, library-based stewardship of the scholarly record will need to be re-imagined as a networked responsibility among multiple stakeholders.

3. **From discovery to discoverability.** There is something of a mismatch between discovery requirements for outside-in and inside-out resources. In the former case, the library wants to make known to its users what it has purchased or licensed for them, maybe alongside pointers to other materials. In the latter case, the library often wants to share institutionally created materials with a broader community, with researchers elsewhere, with professional colleagues, and so on. This places an emphasis on effective disclosure, thinking about search engine optimization, syndication of metadata to network hubs, or to other specialist network level resources (such as ArtStor or ArchiveGrid, for example), and so on. Libraries have to become much more interested in the discoverability of their resources, sometimes within the context of the collective library collection.
4. **Rights.** There are two aspects to consider here. The first is that it becomes important to be explicit about rights as materials are disclosed so as to meet goals of reuse. The second is that there is a growing need for advice on campus, as publishing models and use practices shift. Many academic libraries provide expert consultancy to faculty and students on rights management, in the context of

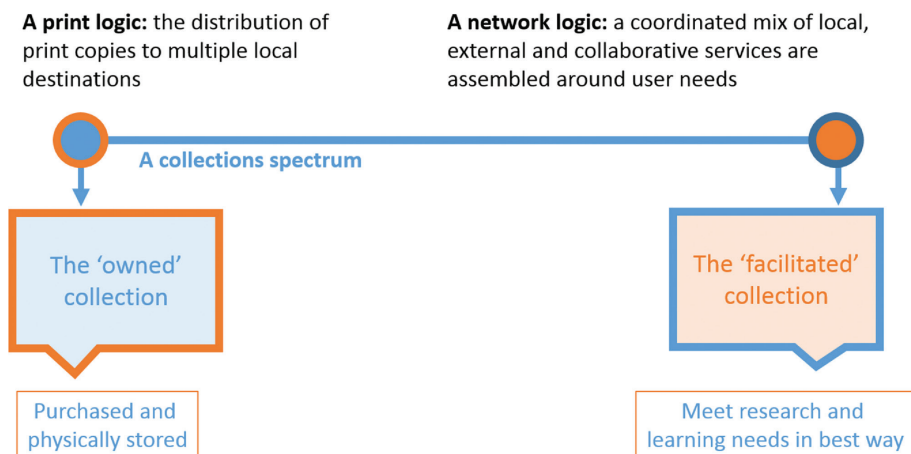
scholarly communication. This is an important yet underappreciated component of support for students and junior faculty alike. It relates both to personal and institutional reputation management.

5. **The return of the special.** It is interesting to think about parallels between the 'old' and the 'new' unique institutional materials, between special collections (especially as they are digitized) and institutional research and learning materials. Each is a distinctive contribution of the institution; each is the institution's responsibility to preserve to the extent it wishes; each involves use of a metadata and repository apparatus, whether locally created or collaboratively or externally sourced; each involves engagement with learning and research practice in new ways; and each brings to the fore the archival concerns of appraisal, provenance, authenticity, and context. Each also involves disclosure from the 'inside' to an outside world of users; for many of these resources, it is likely that there are more interested users outside the institution than inside it. For this reason, the management of these resources is often linked to reputation.
6. **Reputation and value shift.** The role of institutionally created materials in enhancing the reputation of the institution is one that is relatively underexplored or quantified. Special collections, research and learning outputs, and faculty expertise attract people to the university. A related issue is the shift in institutional resourcing that will be needed to support an 'inside-out' turn in the library. If there is a reallocation of the type we discuss here, it needs to be justified within the institution, which will require advocacy and persuasion. The case for curation and disclosure of institutional assets is supported in some instances by university mandate or faculty policies (such as required deposit of pre-prints). Libraries will need to assert a role, based on distinctive expertise in "knowledge work" and management of information assets, in supporting institutional reputation management.

3. Direction 2: The Facilitated Collection is Organized According to a Network Logic³

I noted above that the classical library model was shaped by a print logic. The facilitated collection is organized according to a **network logic** (see Figure 2), where a coordinated mix of local, external and collaborative services are

Fig. 2: Collections spectrum.



assembled around user needs. This aims to meet research and learning needs in the best ways available, and not just by assembling material locally. This is actually a significant shift in how the library thinks about what it does.

Here are some central strands of the **facilitated collection** (Figure 3).

- **The external collection.** Libraries now provide access to many network resources they do not own or license. These include guided access to Google Scholar (there is an incentive to provide proxied access to this so that links to licensed resources work in a well-seamed way), inclusion of 'free' ebook resources in the catalog (e.g. HathiTrust collections), or pointing to various resources with the very popular LibGuides or other resource guides. Indeed, the rise of resource guides is an interesting signal of the facilitated collection as they are organized around user interests rather than around local collections. They may point to local collections, but typically also to externally available resources. And as noted above, the network is rich in resources of potential interest to library users.
- **The move to licensed and just-in-time.** A large part of academic library collections is now licensed. This has moved the library away from a local ownership to a licensing model, with known questions about scholarly communication policy. For my purposes here,

though, this means that the collection is more elastic as titles are added or dropped, as needs, budgets or priorities change. More recently, we have seen the emergence of Demand Driven Acquisition (DDA) implemented in various ways. DDA represents a move away from the just in case, owned collection, based on librarian judgement, towards a model which is built around patron behaviors. The library is facilitating access to required materials, rather than attempting to anticipate what those requirements are. The library discovery layer provides another example, where libraries may provide discovery access to resources which they do not hold.

- **Shared – or collective – collections.** However large, a purely local collection seems increasingly partial when placed in the context of the universe of potentially interesting resources. There is a growing trend to place local collections in a broader network context. While discussing the future of libraries, John Wilkin has distinguished between what is best done locally (the management of space is the obvious example here) and what is best done at the network level. Interestingly, he asserts that the “best example of an activity that can be done most appropriately in a networked context is curation” (Wilkin, 2015). And we can indeed see how several manifestations of such collective collections have emerged successively in recent years. Here are some examples.
 1. The ‘borrowed’ collection. Libraries have long organized in resource sharing networks, through OCLC, or through various regional or national infrastructures. Often, these are associated with union catalogs which describe the ‘collective collection’ available for borrowing. A library may belong to several networks. For example, our neighbor in Columbus, Ohio State University, will share resources in OhioLink, the Big Ten Academic Alliance, and OCLC. WorldCat has emerged as an important registry of the borrowable collective collection, spanning thousands of libraries. In this way, the library can facilitate access to a broader collection than is available locally.
 2. The ‘shared print’ collection. The shared print collection is a natural evolution of resource sharing networks, as local collections are managed down and collaborative approaches to collection management emerge. And indeed, we see OhioLink and the Big Ten Academic Alliance also turn their attention to such

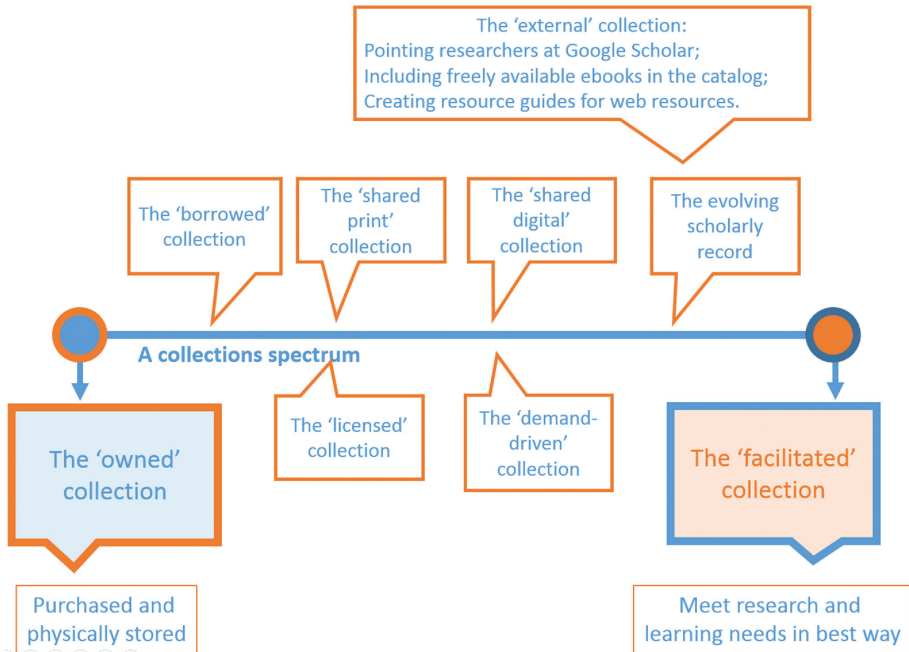
shared management. A large part – perhaps the majority? – of library collections will be under shared management within the next decade. In this way, curation of the collective print record is beginning to be advanced in a network context.

3. The ‘shared digital’ collection. As libraries digitize their collections, it has become clear that very few individual institutions are strong gravitational hubs in themselves. Materials digitized from local collections release greater value when aggregated within larger collections, which can aggregate both supply and demand. In different ways, for example, we have seen HathiTrust, DPLA and Trove, emerge to create these aggregations, aiming to more efficiently unite collections and their potential users. WorldCat also aggregates digital materials through the digital collections gateway.
4. The evolving scholarly record. At one time, the scholarly record comprised the final outputs of research – the journal articles and books. Now, increasingly, there is an interest in a variety of other outputs: methods, working papers, research data, preprints, and so on. In some regimes there is also growing government or funder interest in ensuring broad access to these materials through mandates. As discussed above, institutions have developed mechanisms for managing and disclosing these (‘inside-out’), and they are collected into many services for management and/or discovery. These include disciplinary repositories (e.g. arXiv), third party services (e.g. FigShare), national infrastructure services (e.g. Research Data Australia or Narcis in the Netherlands), collaborative approaches like the nascent Share in the US, and so on. So, while research outputs will feature in a variety of venues, including of course publisher services, we are also seeing collaborative educational initiatives in this space.

In each of these cases we can see a shift of focus from locally owned or managed resources to a shared or collective arrangement at the network level. Developments are uneven, but a trend is apparent.

Some questions and observations – towards collections as a service

This is a quick sketch, illustrating a direction. However, it is helpful to note some of the questions it raises. One can cluster these into core issues of

Fig. 3: *The facilitated collection.*

organization, stewardship and discovery. These overlap with the comments made in the last session.

1. Management of the owned collection (and subsequently the borrowed and licensed collection) shaped library **organization** (technical services, automation, resource sharing, etc.) until recently. New organizational arrangements are emerging, but have not yet crystallized into a general pattern. Consider how libraries are providing support for digital humanities, scholarly communication or digital scholarship in different ways, as discussed above, often aligned with a collections function. Job adverts are a useful signal about directions – the increased use of ‘strategist’ in collections job titles is symptomatic of a shift, as people in those roles are asked to make more decisions about allocation of resources and attention. The facilitated collection as I have described it does not map onto a single library service or organizational category – it is emergent and spans organizational categories.

2. In the 'owned' library, libraries had physical custody of the item, which supported clear **stewardship** lines. Preservation was a benign side-effect of the redundancy of the print distribution model. This has now changed completely. In fact, the facilitated collection involves different levels of custodial relationship with its components, which can complicate stewardship arrangements. Notably, of course, the licensed collection poses well-known questions around long term stewardship of the electronic journal literature. Stewardship of shared collections require conscious coordination of institutional actions, interests and policies (Malpas & Lavoie, 2014). Think of the policy and service frameworks that are emerging around shared print initiatives such as the Western Regional Storage Trust (WEST) or the Michigan Shared Print Initiative (Mi-SPI). Or think about discussion of metadata rights in digital aggregations. Going further, what responsibility, if any, does the library take for external resources it points to? This may involve reliance on information partnerships, or in many cases, on no formal relationship at all (as for example where a library loads records for Project Gutenberg into its catalog). This variety in stewardship arrangements, and the emergence of shared collections, complicates the notion of the local collection. It also makes counting difficult or less relevant. For example, local collection counts can change significantly as libraries experiment with plugging in various content sources (think again of Project Gutenberg records in the catalog).
3. As **discovery** options increase in the broader network environment, so the relationship between collections and discovery shifts (Dempsey, 2012). Demand or patron driven acquisition provides an interesting example. It represents an inversion of the historic discovery/collection relationship: before, the collection drove discovery (the catalog), here discovery drives the collection. More generally, discovery has been peeled away from the local collection, and a variety of network-level discovery venues exist (Google, Google Scholar, ResearchGate, and so on). Discovery often happens elsewhere, often going far beyond the collection. For libraries, this makes greater investment in discoverability (making resources discoverable where people look for them) much more important.

There is some discussion about a shift **from collections to services**. Another way of thinking about what I have called the facilitated collection here is to move towards thinking about **collections as a service**. Libraries will continue

to build collections, although the level of activity will differ across libraries. At the same time, it seems likely that facilitated collections of various types will grow in importance.

4. Conclusion: The Organizational Context

Clearly, what I have discussed here has many organizational implications for the library and for libraries working together and with other partners. While the new organizational context has not yet been given clear shape, it is clear that it will involve greater levels of coordination above the institution, and a closer alignment with the research goals of the university.

Library structures. The inside-out library and the facilitated collection as I have described them do not map onto a single library service or organizational category – they are emergent and span organizational categories. Given the framing in the context of the library in the life of the user, the liaison role and ongoing discussion about its evolution are very relevant. This emphasis is echoed by Jaguszewski and Williams (2013): “The overarching framework for all changes is an increasing focus on what users do (research, teaching, and learning) rather than on what librarians do (collections, reference, library instruction).” Their summary statement is very apt in relation to the topics under consideration here.

“An engagement model in which library liaisons and functional specialists collaborate to understand and address the wide range of processes in instruction and scholarship is replacing the traditional tripartite model of collections, reference, and instruction. New roles in research services, digital humanities, teaching and learning, digital scholarship, user experience, and copyright and scholarly communication are being developed at research libraries across the country, requiring professional development and re-skilling of current staff, creative approaches to increase staff capacity, the development of new spaces and infrastructure, and collaborative partnerships within libraries, across campus units, and among research institutions.”

University structures.⁴ As information management becomes pervasive of university activities, it is natural that various centers of digital information management have emerged on campus, either newly created (around support for

digital scholarship, research data management, or online course development, for example), or evolving from existing units (the university press, for example, or a broader role for the CIO's office). This means that for the library, new collaborations and configurations are emerging, although, again, strategies often appear to be emergent rather than deliberate, representing pragmatic accommodations between campus players and purposes. Local politics and personalities are likely to be very important, and there is yet no organizational pattern. Scale is obviously also an issue here, as the dynamic may vary depending on the size of the institution and the capacities it has available. The library will partner with the CIO's office, the Office of Research (around research information management), the University Press (it is interesting to see organizational convergence on some campuses), individual departments, and so on. Some activities may be tackled at the university level, for example, as universities look at securing the technical infrastructure to manage research data, video, and other digital institutional assets (institutionally or in collaboration; locally or in the cloud). Support for digital scholarship and research data management are often shared campus activity. Accordingly, it is even more important for the library to consider how it positions itself and to be an advocate and partner.

Collaborative structures. Each of these directions potentially involves more collaboration between libraries. This may be to build shared infrastructure, or to build shared collections, or to share resources or expertise in other ways. This activity may happen within existing consortia and groupings, or new ones may be formed. Such consortial activity is about right-scaling, finding the optimal level at which activities should be carried out. Libraries are going to have to think harder about both sourcing and scaling. What does it make sense to do at the institutional level? What does it make sense to do collaboratively at a different scale? What should be left entirely to other providers? It also suggests that there needs to be more conscious coordination of discussions around shared infrastructure needs, especially as core library responsibilities are transferred into shared arrangements. Institutional innovation of this kind is difficult, and developing new cooperative structures and relationships takes time, especially where they involve re-architecting local activities within a new network of relationships.

Shared print and research data management provide good examples here. As noted above, we are now seeing the emergence of several new cooperative activities around shared print. While this has a strong regional dimension, there is some discussion now in the US, for example, about how and whether

these should in turn be coordinated at the national level. Shared print management schemes represent a cost-effective alternative to institution-scale solutions, redistributing the costs of library stewardship across a broader pool of participants. An individual library may participate in several initiatives, and the nature of participation may vary depending on institutional mission. Individual choices about managing down or retention can then be made by those libraries. No one pattern fits all. As noted, 4TU.ResearchData is an interesting collaboration between four technical universities in The Netherlands to offer a range of data management and advisory services to their users. They partly do this through dataverse.nl, a group of Dataverse users in The Netherlands. They also partner with the national service provider DANS. In Australia, Monash University Library also offers a range of local advisory and support services. One option they provide is through an institutional subscription to Figshare (from Digital Science); this is alongside institutional solutions. They are also a principal in the national initiative, ANDS. In each case, choices are being made about local activity and about the pattern of collaboration that will advance library and university goals.

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Notes

¹ My thinking in this area benefits from discussions with my colleagues Constance Malpas and Brian Lavoie over the last few years. A final draft of this paper was improved by suggestions by Constance Malpas.

² This section draws on my contributions to Bell, Dempsey and Fister (2015)

³ This section is based on Dempsey (2016).

⁴ This section is based on Dempsey (2015b).