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# RESEARCH

## Introduction

This chapter reviews UK research in librarianship and information science (hereafter LIS) carried out during the period 2016-2020, and continues previous *British Librarianship and Information Work* (hereafter BLIW) chapters on this topic.<sup>i ii iii iv</sup> We start by describing the context in which LIS research has been carried out during this period, and then review the results of this research as described in the published literature, both academic and professional. The chapter next discusses the results of the most recent Research Excellence Framework exercise, before describing the effect of Covid on research and then presenting our principal conclusions. In preparing the chapter we contacted other LIS departments in the UK for their views on research. Our grateful thanks are due to colleagues from Aberystwyth University, City, University of London, Edinburgh Napier University, Manchester Metropolitan University, Strathclyde University and University College London, who via interviews and emails provided extensive details of the LIS research carried out in their own departments during the review period.

## The research context

The location of LIS departments and schools within University structures differs across the UK, and this was indeed the case for the six institutions mentioned above and for our own department in Sheffield. LIS is sometimes positioned within a social sciences faculty, sometimes in an arts and humanities faculty, and sometimes as part of computer science. It may be an independent department, or a sub-unit within a department.

Core research themes included areas that would be immediately recognisable as traditional LIS, such as: academic, public and school library services and systems; digital literacy; health informatics; information and society; information behaviour and practice; information experience; information literacy; information management; information retrieval; information usability; knowledge management and organisation; records and archives management; scholarly communications including open scholarship; social justice; and user information engagement.

However, there was a wide range of other topics that a few - or individual - LIS departments undertook research in, such as: artificial intelligence, chemoinformatics; combinatorics; cybersecurity; data science; digital transformation; documentation; information technology; machine learning; philosophy of information; programming; robotics; and technology and policy development. Many of these topics reflect a shift during the review period towards a greater emphasis on digital and computational themes.

A shared research priority amongst all participant institutions was to undertake influential, impactful, applied research addressing real-world problems and based on collaboration with practitioners. In contrast to this outward facing priority, some LIS departments were also prioritising the strengthening of internal collaboration and building strong postgraduate research groups. Other strategic priorities for research were: working towards REF requirements, acquiring funding, writing high-quality publications, developing staff leadership potential and socially responsible research for social justice.

Interviewees were asked whether their research priorities had changed during the period 2016-2020. Some observed no change at all. Where institutions had seen a change, the REF prompted a stronger focus on research impact, and producing fewer but higher quality publications. Priorities were also often institutionally driven, and these institutional priorities were also reflected in departmental priorities, such as a focus on research into health and wellbeing, or culture and communities.

Asking LIS departments whether they had noticed whether any societal or political changes had affected their research strategy and priorities during 2016-2020, three socially driven shifts seem to have been important: an even greater focus on the digital, an increased emphasis on social justice, and an impact on funding via Brexit. As a result of 'the digital turn' some departments' priorities had shifted toward investigating peoples' information and digital literacy, particularly with regard to social media, misinformation, health information, and digital life and experience. There was also a greater focus on health and wellbeing, especially within the context of the Covid-19 pandemic. Societal changes have also driven a greater focus on inclusion, diversity, and decolonisation. There were some departments that have engaged with methodologies and approaches from other disciplines in order to research ways in how people understand information and how academics consider information ethics. Some respondents noted that Brexit had impacted research through loss of staff, of European

students and the availability of funding from European Union(EU) and UK government sources.

The availability of funding is a vital part of the context for research. It is, however, very difficult to summarise the funding landscape for LIS because of the wide range of funding sources drawn on and the episodic character of funding calls. From Research Councils UK, which became UK Research and Innovation (UKRI) in 2018, the two central funding bodies for LIS remained the Arts and Humanities Research Council (AHRC) and Economic and Social Research Council (ESRC). Other UKRI funders included Co-inquiry funding from the Natural Environment Research Council, and LIS groups based in computing departments tended to seek funding awards from the Engineering and Physical Sciences Research Council.

As noted in the previous BLIW research chapter,<sup>iv</sup> LIS academics continued to seek a wide range of alternative sources of funding including from charities and philanthropic organisations (British Academy, Leverhulme, Wellcome, Nuffield Foundation), the EU, central government and devolved government agencies (Scottish Government, SLIC), professional bodies (CILIP, ARA) and internal university sources (such as pump-priming funds). Given the difficulty of obtaining standard funding for research projects, some departments were prioritising PhD funding instead. Overall, respondents described the LIS landscape as “difficult” or “not as good as it should be”, with its increasingly challenging and competitive nature and the lack of an obvious ‘home’ for LIS funding. There seemed to be uncertainty regarding the boundary between ESRC and AHRC, and the view expressed that unlike ESRC at least AHRC maintained LIS expertise in its review colleges. It was felt that the poor funding environment was particularly due to the nature of LIS research being misunderstood beyond the discipline. As one interviewee stated, “I think that we have a lot of trouble articulating to other stakeholders exactly what it is that we do...most people...don't understand what we do and they certainly don't understand what libraries are...I think that is one of the reasons why the funding is poor.”

### **LIS research in the published literature**

As before, an overview of academic LIS research in the UK can be obtained by inspection of the data in the Information Science & Library Science category of Clarivate’s *Web of Science Core Collection* (hereafter WoS) database, which provides access to over 33,000 peer-

reviewed academic journals, as well as a wide range of other types of source. That said, it should be emphasised that there are limitations associated with the use of the WoS data. First, the Information Science and Library Science subject category (hereafter ISLS) contains not only LIS publications but also those in the related discipline of information systems and thus includes articles in high-profile, non-LIS journals such as *European Journal of Information Systems* and *MIS Quarterly*. Second, the very diverse nature of LIS means that much important research appears in publications that are included in other categories: for example, while most of the 2016-2020 publications by the authors of this chapter were included in the ISLS category, they also appeared in no fewer than 19 other WoS categories including disciplines as diverse as Crystallography, Education & Educational Research, and Public, Environmental & Occupational Health. Finally, WoS focuses on academic publications, and thus does not cover many of the more professionally-oriented LIS sources. A search of the WoS database in May 2022 for ISLS items that were published between 2016 and 2020 and that had one or more UK-based authors identified a total of 3,448 publications. The chosen document types here were articles (these providing 83.6% of the total), books, book chapters, proceedings papers and review articles, and this corpus will form the basis for the following discussion.

Across the discipline, the ten most popular journals were *Qualitative Health Research* (175 articles), *Journal of the Association for Information Science and Technology* (135), *Scientometrics* (129), *International Journal of Information Management* (105), *Insights - the UKSG Journal* (81), *Information Technology & People* (101), *Journal of Documentation* (78), *Health Information and Libraries Journal* (69), *Journal of the American Medical Informatics Association* (65), and *Learned Publishing* (64). With the exception of *Insights - the UKSG Journal* (formerly entitled *Serials: the Journal for the Serials Community*) and *Information Technology & People* all of these were also amongst the ten most popular journals in the 2011-15 review.<sup>iv</sup>

To obtain an overview of the most common research topics in the 2016-2020 period and to compare these with those in the 2011-2015 period, the titles were downloaded of the articles that had been published in those eight journals that were common to the two periods' lists of the ten most productive journals. Of these eight, *Qualitative Health Research* was omitted from the analysis since the great bulk of its contents proved to be far removed from LIS; indeed, it is allocated not only to this category but also to Public, Environmental &

Occupational Health (which is perhaps the most appropriate category), Social Sciences - Other Topics, and Biomedical Social Sciences. The titles of the seven remaining journals were then analysed using the Monkeylearn word cloud routine (at <https://monkeylearn.com/wordcloud>) to identify the most frequently occurring words and phrases. Looking at the 20 most frequent terms for each period, eight were common to the two lists: *case study*, *citation* (which was placed first in both lists), *electronic health record*, *health library*, *information behaviour*, *peer review*, *social science*, and *systematic review*; and there was also a close match between *international collaboration* in the later list and *scientific collaboration* in the earlier list.

There is hence, as would probably be expected, a fair degree of similarity between the two sets of topics; however there are also three notable dissimilarities. The first, and the most marked, is that social media is the second most frequent term in the 2016-2020 list but does not appear at all in the top 20 (or even top 50) terms in the 2011-2015 list, demonstrating the explosion of interest in this as a focus of LIS research. Secondly, and conversely, information literacy is 13<sup>th</sup> in the earlier list but doesn't appear in the top 50 terms in the later one, presumably because it is now so well established in all sorts of LIS contexts (or conceivably because of the use now of terms such as *misinformation* or *fake news* or of broader terms such as *media literacy*). Finally, in addition to *citation*, the later list has a further three terms - *bibliometric analysis*, *Microsoft Academic* and *Google Scholar* - that all reflect a focus on bibliometrics, whereas there are no such related terms in the earlier list. This behaviour would appear to mirror the situation more broadly, as reflected in the *Library and Information Science Abstracts* database, which covers not only academic but also non-academic sources such as professional journals and magazines. Here, title searches again show increases from 2011-15 to 2016-20 in the numbers of hits for *social media* and for *bibliomet\** but a decrease in the number for *information literacy*.

It should be remembered that the journals discussed thus far are those that appeared most frequently in WoS but there are many others that play an important role in LIS research. Discussions with academic colleagues additionally highlighted the roles of *Aslib Journal of Information Management*, *Journal of Information Science*, *Journal of Librarianship and Information Science*, *Library and Information Research*, *Library Quarterly*, and *Library Trends*, as well as more specialised publications in areas such as archives and records management, digital humanities, digital sociology, and information technology.

The list of authors for the 3,448 publications is headed by Michael Thelwall, the director of the Statistical Cybermetrics Research Group at the University of Wolverhampton, who had 126 publications during the review period. Other authors with 20 or more LIS publications between 2016-2020 (as against those with an information systems focus) were Kayvan Kousha (a Wolverhampton colleague of Thelwall), David Nicholas (the director of CIBER Research Ltd.), Hazel Hall and Leo Appleton at Edinburgh Napier University, and Stephen Pinfield and Andrew Cox at the University of Sheffield. Thelwall, Kousha and Nicholas were all included in the list of the most productive authors in the 2006-10 and 2011-15 BLIW research chapters, and there is also a fair degree of commonality if one considers the titles of the journals where those publications have appeared. All except one of the authors in this list are men, a greater majority than the list of ‘most productive LIS authors’ in the previous version of this chapter.<sup>iv</sup> While research suggests that in LIS internationally, women are a larger proportion of authors than men, especially in librarianship,<sup>v vi vii</sup> these gender disparities appear no less notable in a discipline that maps onto the UK information professions, when one considers that 78.1% of the workforce is female.<sup>viii</sup>

The 3,346 publications had attracted a total of 38,070 citations (after the removal of self-citations) by the end of May 2022. Inspection of the most highly cited publications showed that the great majority of these were on topics far removed from LIS, involving articles on information systems or on information technology more generally. Indeed, of the 21 publications with at least 150 citations, only four could be considered as being in areas of conventional LIS interest: two were bibliometric comparisons of the Google Scholar, Scopus and Web of Science databases, one described the use of sentiment analysis on Twitter, and one discussed the quality of geographic information sources. It would hence appear that while the LIS community publishes extensively (as reflected by the strong LIS focus of the most popular journals identified in the WoS analysis), there has been only a limited amount of take-up (as measured by citations) of that work. That said, this may be due in part to the strong practitioner focus of much LIS research (for which success is often measured by knowledge sharing and exchange rather than by citation counts), and in part to the relatively small size of the community when compared to the very large number of researchers studying topics related to information systems.

The discussion thus far has focussed entirely on the academic literature but the nature of LIS means that much important work is reported in the professional literature. We have hence conducted a content analysis of the main UK magazine for members of the professional body (*CILIP Update* and its successor from November 2018, *Information Professional*), continuing the similar work that was undertaken for the chapter in the previous BLIW volume.

There were 101 research-related articles over the five years (quite a few more than the previous period, when 67 were identified). Many were short news items, but sometimes there was in-depth coverage of research in a long article. Recurrent topics were subjects such as digital skills, public library value and use, reading, and scholarly communications and researcher behaviour, and (increasingly from 2017 onwards) artificial intelligence and internet misinformation. The research was spread across sectors of reading and public libraries, academic libraries, corporate knowledge information management, health and school libraries, with the eight items on reading and 21 about public libraries suggesting a continued emphasis on these two areas.

Of the total of 101 articles, 18 of them were based on research by academics: of these only ten were by academics based at recognised UK LIS departments or units, with the other eight coming from non-LIS departments or from departments overseas. These numbers are far fewer than reported in the previous BLIW chapter where almost one-third of the articles (23 of the 67) were by UK LIS academics. The AHRC was mentioned as a funder of work for six of the items but only two of these were for research by LIS academics, and none of the other funding councils was mentioned. There could be a number of interpretations for this low and declining representation of LIS academic research in the main professional magazine. It could be because much academic research is not directly related to practice issues: for example, a research project could be about a specific model of information behaviour, rather than being about some practical aspect of service delivery. Given the relative emphasis on reading and public libraries as central topics for the magazine, it may also be that there has not been much LIS academic research in these particular areas. Another reason could be that LIS researchers fail to promote their work to the widest audiences of practitioners, although this would be rather surprising given the increased importance of impact as discussed below in the context of the REF.



There were just four items on research attributed specifically to masters or doctoral students. And, surprisingly given its value and the nature of *CILIP Update/Information Professional*, only 11 pieces of practitioner research were reported (a comparable proportion to the 8/67 observed in the previous period); although there is, of course, a grey line between practitioner service development and evaluation, and formal research based on a formal research design etc. There was a significant level of reporting of research-related material such as about supporting research or regular columns about user experience (akin to reporting research methods). The majority of the reported research (66 of the 101 articles, as compared to 29 of 67 in the previous period) came from external agencies. These agencies were of two types. Some was directly relevant research carried out about libraries, by organizations such as the Department for Culture, Media and Sport or the Arts Council, charities such as the Carnegie Trust or the Reading Agency, and various other parties such as ProQuest. The rest was reporting of research by a mixture of UK and international organizations (e.g., YouGov, the BBC, or the Pew Research Center) that was of general relevance to information work but not tied to an information service setting, e.g., articles about fake news or cybersecurity.

### **The Research Excellence Framework (REF 2021)**

Perhaps the strongest indicator of the state of UK research in LIS lies in the submissions that LIS departments make to the Research Excellence Framework or REF (previously the Research Assessment Exercise).<sup>ix</sup> This is a regular evaluation of the quality of the research carried out in all disciplines and universities throughout the UK, and is organized by the four UK higher education funding bodies (Research England, the Scottish Funding Council, the Higher Education Funding Council for Wales, and the Department for the Economy, Northern Ireland). A department's submission to the REF consists of three main parts:<sup>x</sup> the outputs (comprising those academic publications that the department considers to represent the best of its research during the period under review); their impact (which describes how a department's research benefits the broader, non-academic world); and the environment (which describes a department's past and future research priorities, the management of its research staff and students, marks of external recognition etc.). The three parts provide 60%, 25% and 15% respectively of the overall evaluation of a department's submission (these percentages reflecting an increase in the importance of impact and a decrease in the importance of the environment as compared to the previous exercise, REF 2014).

Departments make their individual submissions to a Unit of Assessment (or UoA). There is no longer a UoA specifically for LIS: instead, it is part of the much larger UoA34, which covers Communication, Cultural and Media Studies, Library and Information Management. Given the extremely broad subject spread of this UoA some departments made joint submissions with other of their parent institution's departments; for example, the Edinburgh Napier submission to UoA34 involved not just LIS research from the Centre for Social Informatics but also research from the School of Arts and Creative Industries and from the Business School. Indeed, the only department submitting LIS-related work to UoA34 entirely on its own appears to have been the University of Wolverhampton's Statistical Cybermetrics Research Group, which is one of the world's leading centres for scientometric studies. Other LIS departments submitted to other UoAs; for example, the Aberystwyth submission to UoA 17 (which is for Business and Management Studies) included research from both the Department of Information Studies and the Aberystwyth Business School; whilst LIS research at Manchester Metropolitan University was included in submissions not only to UoA17 but also to UoA21 (Sociology) and to UoA27 (English Language and Literature). Submissions such as these reflect, in part at least, the changes that are taking place more generally in LIS education in the UK, with departments becoming subdivisions of larger groupings within their university, or even closing down entirely.<sup>xi</sup> Given these circumstances, it is not possible to discuss meaningfully the overall ratings that were awarded to the individual departmental submissions (as was done in previous BLIW chapters). Two points are, however, worth making, these relating to changes in the environment statement and to the increased importance attached to the evaluation of research impact.

The guidance provided to institutions asked departments for the first time to provide evidence of: how they supported and promoted equality, diversity and inclusion (EDI); and how they were progressing towards an open research environment and supporting the sharing and management of research data.<sup>x</sup> The REF 2021 Equality and Diversity Advisory Panel (EDAP) reported its review of the unit-level statements<sup>xii</sup> and 'found considerable variability in support for EDI across submissions' (p.18), with insufficient consideration for work required 'to address built in structural inequalities that impact on the assessment of research quality' (p.19). Departments and institutions were also required to demonstrate how they had considered EDI issues in the development of their REF submission, including in the selection of outputs. The EDAP review reported the weakness of many submissions in this regard, with only a minority of institutions and units referring to their institutional Code of Practice and

how it underpinned an inclusive approach to selecting outputs, while other submissions merely cited the proportion of female and/or BAME staff contributing to the submission. The EDAP review did not comment on individual units of assessment in relation to EDI so we cannot draw any conclusions about LIS submissions in this regard, but given the widespread weaknesses reported in the review, it seems reasonable to assume that they would also apply to our own field. There does not appear to have been a comparable advisory panel set up to consider how the submissions had addressed the need to support open research. However, given that the library often provides the principal source of support for these matters within a university, and given that LIS departments are often involved in research on them, it is not surprising that some of the departments were able to make particularly strong cases for their work in this area. Thus, the UCL department is central to the governance of UCL Press, which is the UK's first fully open-access university press, while that at Sheffield has made significant contributions of code and data to international repositories in chemistry and in information retrieval.

An evaluation of the impact of a department's research was first included as a part of REF 2014, where impact is defined as 'an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia', and departments were asked to submit a number of case studies illustrating the ways in which their research was serving these broader communities.<sup>xiii xiv</sup>

The UoA34 case studies covered a range of LIS-related topics. Thus, a research programme at Robert Gordon University into the role and impact of school libraries on learning has shaped Scottish government policy developments and strategic decision making on the development of literacy and numeracy skills;<sup>xv</sup> work at Edinburgh Napier University on behalf of the Chartered Institute of Library and Information Professionals and the Archives and Records Association has resulted in the most detailed profile to date of the workforce of the UK information professions;<sup>xvi</sup> and research at UCL on information rights has improved access to their records of adults who were in care as children, and has shown the need to balance the rights and responsibilities of care-experienced people, information and social care professionals, and public policy makers.<sup>xvii</sup> Other studies involved the application of novel computational methods, often in rather more unusual aspects of LIS. Thus, work at the University of Wolverhampton has developed a range of social media, altmetric and scientometric tools that have supported decision making by United Nations organizations and

high-level research management in Belgium, the EU and the UK;<sup>xviii</sup> and research into chemoinformatics at the University of Sheffield has resulted in novel techniques that describe the similarities between compounds in databases of chemical molecules, techniques that assist in bringing novel drugs into use for the treatment of the general public.<sup>xix</sup> It will be clear from these examples that the research conducted in LIS departments is bringing significant benefits to a wide range of types of user community, something that will surely continue to be the case given the importance of REF in driving institutional and departmental research priorities.

Given the newly (or, rather, belatedly) recognized importance of open research and EDI in REF submissions it is interesting to see the extent of their coverage in the published literature. WoS searches in the 3,448-items discussed previously for “*open access*” OR “*research data*” revealed 213 publications, mostly in core LIS journals, and 89 for *equality* OR *diversity*, this lesser total being spread across a much wider range of journals. LIS research in the broader field of EDI and social justice has grown in the last decade, with an influential special issue of *Library Trends* published in 2015, just before the period under review. In the introduction, Mehra<sup>xx</sup> described the ‘organic relationship between social justice and library and information science’ (p.179), acknowledging that LIS social justice theory was still in its early stages, and that ‘the explicit term “social justice” is only now beginning to appear in LIS literature’ (p.183). During the review period, a notable addition to this literature was the quarterly, open access *International Journal of Information, Diversity & Inclusion*, which was created in 2016 to ‘expand the discourse on how access to, interaction with, and the use of information by a range of populations can impact individuals, communities and society’.<sup>xxi</sup> The REF has also been an object of research in its own right, with 45 items retrieved in a WoS search for *REF* or *Research Excellence Framework*, the great majority of which were in LIS, as against information systems, journals, and with 12 of these 45 discussing open access or research data.

### **The Covid effect**

The final year of the review period, 2020, saw the arrival of the worldwide Covid epidemic and it was immediately clear that this would affect research just as it would affect every aspect of modern-day life. For many, perhaps most, academics the first requirement was to shift from working on campus to working at home, and to effect a rapid transition from the normal, face-to-face delivery of lecture courses to their provision online. These significant

changes in working conditions and priorities required a huge amount of effort in a very short time that reduced - initially at least - the time that was available to plan, conduct and disseminate research in LIS as elsewhere. We know that gender, ethnicity and caring responsibilities were three of the main factors affecting many academics across disciplines.<sup>xxii</sup> Some researchers reportedly found more time for research as the move to home and online working allowed greater flexibility and reduced commuting time. Given prolonged school closures and associated childcare and homeschooling responsibilities from March 2020 onwards, however, a large number of academic staff and researchers will have had far less (or no) capacity to engage in research.<sup>xxiii</sup> In many cases, this additional burden fell more heavily on women, who often also bear more pastoral leadership responsibilities than men,<sup>xxiv</sup> a point which is particularly relevant at a time of increased mental health issues for university students and staff.

Perhaps the most significant effect of Covid was on the research process, affecting many ongoing research projects through the need to make significant changes in the collection of data, and reducing the capacity of many academics to submit grant applications at all.<sup>xxv</sup> For new or ongoing research projects from March 2020, even when participant recruitment was successful, it was difficult to conduct face-to-face research, leading to an acceptance of, and a greater use of, online, virtual methods.<sup>xxvi</sup> Other Covid-related effects included the need to amend research ethics procedures, to slow project timelines and to require applications for project time extensions, particularly for doctoral researchers (many of whom were also isolated by departmental closures and the lack of face-to-face peer and supervisor support). Researchers in Scottish and Welsh institutions were perhaps affected more, owing to the stricter restrictions imposed there as compared to those in England.<sup>xxvii</sup>

Irrespective of the above mentioned societal impacts on research capacity, the effect of Covid on research outcomes was that, generally, projects developed differently from how they were originally designed. Covid-related topics became even more relevant and essential, handwashing and library closures for example, and it even became a subject for research itself, with 42 UK publications on Covid in ISLS in 2020.

It remains to be seen to what extent Covid will bring about long-term changes. In addition to the impact of the pandemic on individual researchers, one can certainly expect increased interest and research in established LIS topic areas such as online health information, digital

literacy, and information behaviour and practice more generally. It has been suggested<sup>xxvi</sup> that changes are most likely to become apparent in research design and ethics, with digital methods leading to flexibility and creativity (yet an increasing awareness of the digital divide) and shifting research ethics – whereby a pandemic overturns ‘outdated paternalistic Euro-Western ideas that researchers must protect vulnerable participants’, with a greater emphasis on participatory and co-produced research design and methods that empower local subjects rather than extracting their data. Academic conferences initially came to a sudden halt but many resumed in online mode and have subsequently adopted a hybrid mode of operation, especially with the increasing need to reduce travelling on grounds of sustainability.<sup>xxviii</sup> Such changes will mirror those that are already evident in the widespread acceptance of hybrid working (i.e., working from home in whole or in part) in many types of organization.

## **Conclusions**

Previous reviews have concluded by listing the messages for the LIS research community that had emerged during the review period, and it hence seems appropriate to conclude the present review with an analogous summary of the positive and negative aspects as we perceive them in mid-2022.

By far the most worrying aspect is the significant reduction in the number of LIS departments, either through closure (e.g., Loughborough and University of Central England, where many of the staff subsequently transferred to other departments) or subsumption within another, larger department or school (e.g., Northumbria and Strathclyde). The decline has inevitably resulted in at least some diminution in the size of the LIS academic community, and hence in the volume of research that is carried out.<sup>xi</sup> This decline in numbers has taken place at a time when it has become increasingly difficult to obtain research funding. Two significant sources of funding in the past have been the EU and the AHRC. There are increasing problems for UK academia in general as a result of Brexit, and there is now no AHRC review panel for the review of LIS proposals. The reductions in the research workforce are linked to a significant contraction in the size of the public library workforce<sup>xxix</sup> - something that is unlikely to change in the foreseeable future given the ongoing reductions in local and central governmental funding - and this may lead to a reduction in practitioner research.

Turning to more positive changes, there would seem to be at least some potential for the research landscape to improve over the next five years. First, there is potential for growth through work with practitioners, something that had already led to increased funding opportunities in Scotland pre-Covid and that has resulted in an increase in published research by practitioners (rather than academics) in LIS journals. Second, several of the departments are members of the international iSchools movement (at <https://ischools.org>) and links to other, non-UK members could provide a basis for funding applications and research collaborations that could help to grow the research community here in the UK. Third, working with other disciplines, where an LIS lens could offer new insights on a wide range of topics. In particular, LIS insights on barriers and inequalities in access to information and library services could be a fruitful line for public engagement and relevance; and the growing social significance attributed to data could be another area that would benefit from insights from LIS. Finally, more LIS-type studies are increasingly being conducted outside LIS departments and not necessarily presented as LIS work, e.g., work on digital humanities and cultural heritage. An understanding of how such work is being presented and gaining attention could lead to better visibility and funding for our own discipline.

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<sup>i</sup> David Nicholas, 'Research' in John H. Bowman (ed.), *British librarianship and information work, 1991-2000*. Aldershot: Ashgate, 2006, pp. 369-386.

<sup>ii</sup> David Nicholas, 'Research' in John H. Bowman (ed.), *British librarianship and information work, 2001-2005*. Aldershot: Ashgate, 2007, pp. 360-371.

<sup>iii</sup> Barbara Sen and Peter Willett, 'Research' in John H. Bowman (ed.), *British librarianship and information work, 2006-2010*. London: J.H. Bowman, 2012, pp. 338-359.

<sup>iv</sup> Briony Birdi and Peter Willett, 'Research' in John H. Bowman (ed.), *British librarianship and information work, 2011-2015*. London: J.H. Bowman, 2017, pp. 378-392.

<sup>v</sup> B.T. Sampath Khumar, R.S. Vinay, M. Vijayakumara, and K.T. Santhoshkumar, 'Gender disparities in LIS research productivity: an exploration', *Proceedings of the International Conference on Library and Information Science*. Kato, Japan, 2018, pp. 225-235.

<sup>vi</sup> Sumeer Gul, Tariq Ahmad Shah, Samir N. Hamade, Rabiya Mushtaq, Ikrah Koul, 'Effects of gender in library and information science research: a case study of *The Electronic Library*', *The Electronic Library* **34** (3), 2016, 488-503.

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