Australian Library and
Information Association

PROFESSIONAL PATHWAYS

Frameworks Project

Technical Report: Overview

Prepared by Dr Gillian Hallam | March 2022

Professional Pathways Frameworks Project Technical Report: Overview

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Foreword

Vicki Edmunds
ALIA President and Professional Pathways Board Chair

It's with great pleasure that I introduce this Overview Report. This report, and the full Technical Report to which it is a guide, mark the conclusion of the foundational discovery phase of the Professional Pathways Initiative.

Professional Pathways is a significant investment by ALIA in the people who create, maintain and grow our library and information services in Australia. It is also a significant investment by our Members, with more than 600 people giving their time and expertise to participate in consultations, provide feedback, and otherwise support the project. The resulting Overview and Technical Reports, expertly prepared by Dr Gillian Hallam, provide the comprehensive evidence base for the next stages of the initiative.

One of the most frequent pieces of feedback received from people on the draft Technical Report was how impactful it was to see the diversity of the profession and the corresponding diversity of skills, competencies and knowledge within each sector. At the same time, our core ethics and values unites us all in our profession, no matter the sector or level at which we are working. As the report shows, when areas of emerging skills are explored, all draw substantially on this ethical core.

When I took the Presidential theme of diversity, I did so knowing that as a sector, we still have work to do to be a fully welcoming and inclusive profession. ALIA's 2020-2024 Strategic Plan includes the priority 'Supporting a resilient, diverse workforce: attracting and developing talented, committed individuals from different cultural backgrounds, who will have the strength and agility to navigate a rapidly changing workplace.' The Technical and Overview reports provide us with the solid foundation on which we can now develop new pathways within and into the library and information profession, and ensure that we are attracting, welcoming and supporting the diverse cohort of people who will drive Australia's library and information services into the future.

I hope that you enjoy reading this report as much as I did. I know for me it will be a constant reference as the Professional Pathways Board strategically directs the Initiative going forward, and works to ensure that the library and information profession is diverse, valued, and equipped with the right skills, knowledge, ethics and support to be able to deliver library and information services that anticipate and meet the needs of the community.

Recommendations

The ALIA Professional Pathways Board met on 15 February to discuss the Technical Report and findings. The Professional Pathways Board make the following recommendations in response to the Report to guide the next stages of the Professional Pathways Initiative:

Recommendation 1: Develop a framework of knowledge, skills and ethical behaviour

It is recommended that ALIA develops a comprehensive framework of knowledge, skills and ethical behaviour that represents a sector-wide, whole-of-career resource, supporting the learning and development needs of all library and information professionals while recognising specific needs within areas of specialisation. The framework should be developed in consultation with people across the sector, and draw from the evidence in this report and ALIA's *Foundation knowledge for entry-level library and information professionals* (2020e).

Recommendation 2: Work with educators to strengthen accredited courses

It is recommended that ALIA work with educators and the industry to strengthen the ALIA-accredited qualifications with specific attention to industry engagement, practical experience, and quality improvement. ALIA should work with educators to better track the student cohort diversity measures and to attract and support talented students from diverse backgrounds.

Recommendation 3: Develop new professional pathways

It is recommended that in implementing the new framework (Recommendation 1) consideration is given to new pathways into the profession, professional registration, and revalidation of professional status. ALIA should work with educators and other partners to identify existing and potential CPD offerings which will integrate with the new framework.

Recommendation 4: Progress employer engagement strategy

It is recommended that ALIA develop an employer engagement strategy to build a deeper appreciation of the importance and value of professionalism, continuing professional development, and the whole-of-career framework as implemented.

Preface

This document presents an overview of the major *Professional Pathways Frameworks Project Technical Report*, commissioned by the Australian Library and Information Association (ALIA), which has been prepared as part of the *Professional Pathways* project. The *Technical Report* documents the findings from a major literature review and environmental scan to develop a clear understanding of the diverse and often complex issues relating to the education and qualification pathways into the library and information profession.

The research activities examined five key themes: the specific knowledge and skills required by library and information professionals, the values and ethics that underpin professional practice, the current qualification pathways into the profession, the role of micro-credentials in professional pathways, and the value of continuing professional development for professional recognition.

The richness of these themes is reflected in the discussion in the *Technical Report*, with a wealth of information drawn from around 800 academic and professional documents. This *Overview* document does not attempt to replicate the breadth and depth of the study, but rather presents a condensed outline of the discussion as an aid to navigating the full report. The *Technical Report* represents the authoritative research document for the ALIA *Professional Pathways* project and should be referred to and referenced in any further research or reporting activities.

For the sake of consistency and convenience, the references in this *Overview* reflect the references as they are presented in the full *Technical Report*.

Contents

List of abbreviations

AALL	American Association of Law Libraries
AASL	American Association of School Librarians
AIIM	Association for Intelligent Information Management
AITSL	Australian Institute for Teaching and School Leadership
ALA	American Library Association
ALIA	Australian Library and Information Association
ALLA	Australian Law Librarians' Association
ANDS	Australian National Data Service
ANU	Australian National University
ANZCO	Australian and New Zealand Standard Classification of Occupations
APLA	Australian Public Library Alliance
APSC	Australian Public Service Commission
AQF	Australian Qualifications Framework
ARA	Archives and Records Association UK
ARDC	Australian Research Data Commons
ARL	Association of Research Libraries
ARMA	Association for Records Managers and Administrators
ARMS	Australasian Research Management Society
ASA	Australian Society of Archivists
ASLA	Australian School Library Association
ATN	Australian Technology Network
BOK	Body of Knowledge
CALL	Canadian Association of Law Librarians
CARL	Canadian Association of Research Libraries
CAUL	Council of Australian University Librarians
CAEP	Council for the Accreditation of Educator Preparation
CILF	Competency Index for the Library Field
CILIP	Chartered Institute of Library and Information Professionals
CLA	Canadian Library Association
COAR	Confederation of Open Access Repositories
CPD	Continuing Professional Development

CSL	Canadian School Libraries
CSU	Charles Sturt University
DTA	Digital Transformation Agency
EAC	ALIA Education Advisory Committee
EU	European Union
FLICC	Federal Library and Information Center Committee
GLAM	Galleries, libraries, archives and museums
GLAMR	Galleries, libraries, archives, museums and records management
HE	Higher education
HLA	Health Libraries Australia
IFLA	International Federation of Library Associations and Institutions
IALL	International Association of Law Librarians
ICA	International Council for Archives
IM	Information management
IMLS	Institute of Museum and Library Studies
InTASC	Interstate Teacher Assessment and Support Consortium
ISTE	International Society for Technology Education
KSA	Knowledge, skills and abilities / Knowledge, skills and attributes
LAM	Libraries, archives and museums
LIANZA	Library and Information Association New Zealand Aotearoa
LIBER	Association of European Research Libraries
LIS	Library and information science
MLA	Medical Libraries Association
MOOC	Massive Open Online Course
NAA	National Archives of Australia
NASIG	North American Serials Interest Group
NYSL	New York State Library
NZ	New Zealand
NZLLA	New Zealand Law Librarians' Association
NZQA	New Zealand Qualifications Authority

OSALL	Organisation of South African Law Libraries
PKSB	Professional Knowledge and Skills Base
QAA	Quality Assurance Agency
QUT	Queensland University of Technology
RIMPA	Records and Information Management Professionals Australasia
RLUK	Research Libraries UK
SAA	Society of American Archivists
SCL	Society of Chief Librarians (now Libraries Connected)
SFIA	Skills Framework for the Information Age
SLA	Special Libraries Association
SLV	State Library Victoria
SLWA	State Library of Western Australia
UK	United Kingdom
US	United States
VET	Vocational education and training

1. Introduction

The *Professional Pathways* project represents an ambitious initiative for the Australian Library and Information Association (ALIA) to deliver a valued, supported and diverse library and information workforce, equipped with the right skills, knowledge, and ethics to deliver quality library and information services that anticipate and meet the needs of the population into the future.

One of the principal objectives of the four-year project is to develop an appropriate framework which will offer alternative options for entry into the library and information profession. The preliminary activities in the workplan have focused on establishing an evidence-base to guide and support the complex decisions that ALIA will make about alternative professional pathways. A comprehensive literature review and environmental scan was commissioned to locate, analyse and synthesise the relevant professional and academic discussions about the wide range of issues that underpin a mature understanding of the existing and potential pathways into the LIS profession.

The full *Technical Report* (ALIA, 2022) presents an extensive examination of five themes which were considered critical for our understanding of the current and future professional pathways:

- What is the competency profile of a library and information professional?

- How do different skills frameworks present the knowledge, skills and attributes that are required to deliver quality services to our communities?

- What is our understanding of the values and ethics that distinguish the library and information profession from other fields?

- What are the different qualification pathways into the library and information profession here in Australia, and in other countries? How do these pathways compare with those in other professions such as accounting, law, data management and architecture?

- With a rapidly changing working environment driven by technological developments, what are the emerging trends in professional qualification pathways? How do different stakeholder groups, including educators and employers in industry and the professions, view the opportunities and challenges of micro-credentials?

- What about the imperative for continuing professional development? How do professional associations encourage and support career-long learning and development?

The wide-ranging issues relating to skills frameworks, ethics and values, qualification pathways, future views of education and training, continuing professional development and professional status, are examined from the differing perspectives of government bodies, education consultants, training providers, academic researchers and professional bodies. The resources retrieved during the research process include reports, peer-reviewed journal articles, dissertations, policies, guidelines, protocols, discussion papers, industry journals, conference papers, websites and blogs, mainly published between 2010 and 2021.

The strategic importance of the *Professional Pathways* project has been acknowledged by the ALIA Board of Directors. The first strategic priority articulated in the *ALIA strategic plan 2020-2024* (ALIA, 2020a), focuses on the library and information workforce:

> *Supporting a resilient, diverse workforce*: attracting and developing talented, committed individuals from different cultural backgrounds, who will have the strength and agility to navigate a rapidly changing workplace.

Strategies, frameworks and plans for building an inclusive workforce which represents community diversity can be found across the government, corporate, academic and not-for-profit sectors. It has long been argued that the library and information workforce should reflect the diversity inherent in the communities they serve. ALIA has endorsed the vision of "a united Australia which respects this land of ours; values the Indigenous heritage; and provides justice and equity for all" (ALIA, 2009, p.1). The association acknowledges Aboriginal and Torres Strait Islander people as the First Peoples of Australia and recognises the wide diversity of Indigenous cultures.

In the *ALIA workforce diversity trend report* (ALIA, 2019a), however, the very low level of Indigenous employment in the library and information sector was noted and the association called for a significant increase in the number of workers who identify as being from Indigenous backgrounds. While the research data collected in the *National survey on Aboriginal and Torres Strait Islander employment in Australian libraries* (UTS, Jumbunna Institute, 2021) confirmed the low numbers of Aboriginal and Torres Strait Islander people employed in the sector, survey respondents expressed hope that there would be good opportunities in the future to support career development, with the expectation that new pathways would help more Indigenous peoples enter the profession.

The multicultural character of Australia has developed over recent decades. As 30% of the present population, or 7.6 million people, were born overseas, and over 300 languages are spoken in Australian homes (ABS, 2021), there is scope for libraries to employ a multicultural workforce. Beyond diversity in the workplace itself, however, it is critical that libraries develop and deliver the relevant collections, programs and services to directly respond to the wide range of community interests and to support the spectrum of community needs. Importantly, the specific needs of Aboriginal and Torres Strait people as First Peoples of Australia need to be considered, and there are unique roles that libraries can develop to acknowledge and recognise Indigenous histories and cultures and to contribute to national reconciliation.

The ambit of the programs and services offered by library and information services across this country has undoubtedly expanded in recent years – and is likely to continue to expand into further new areas of practice – with the result that many non-LIS qualified personnel are attracted to the emerging fields of professional practice in the library and information sector. People from many different disciplines, including IT, data science, education, early childhood literacy, social work, community development and the creative arts, are already working in the new roles that have been established. If we accept that library programs and services are becoming increasingly diverse, then it is critical that we also consider the knowledge and skillsets and the staffing profile required to deliver contemporary library and information services. If we want to attract talented and committed individuals, we must also ask whether the current qualification pathways into the library and information sector are still the only appropriate ones.

In response to concerns about the changing picture of LIS education in Australia, ALIA had already launched a major consultative initiative: the *Future of LIS education 2019-2024*. The issues paper, *The future of LIS education* (ALIA, 2019a), initiated a sector-wide consultation process. The ideas captured in the consultations, presented in *The future of library and information science education in Australia: Discussion paper* (ALIA, 2020b), confirmed that many other professional skillsets, not only LIS skillsets, were needed to design, deliver and administer contemporary library and information services. Therefore, in addition to the existing ALIA-accredited LIS qualifications, there is scope to consider new professional pathways which could open up opportunities to increase workforce diversity. This strategy, which should necessarily be a collaborative venture with libraries, educators, current and next generation leaders, would help attain one of the principal goals of ALIA's workforce initiative: "to attract clever people from a wide range of backgrounds to the industry, who share the ethos and values of the profession, in order to be inclusive and relevant" (ALIA, 2020c).

As the consultative process also highlighted the importance of examining a broader spectrum of issues, the project was reimagined as the *Professional Pathways* Initiative. The overarching *Professional Pathways plan* (ALIA, 2020c) was released as a draft in November 2020, with the vision to build and support a strong LIS profession that is highly valued and supported by employers and the community. By reflecting the diversity of the community and having the appropriate portfolio of skills, knowledge and ethical practice, the workforce should successfully

deliver the library and information services that truly anticipate and meet the needs of the Australian community. Four strategies are presented in the plan:

- To recognise the skills and experience of LIS professionals and to incentivise continuous learning through a professional certification process

- To create pathways for people with non-LIS academic qualifications to seek LIS professional status through knowledge, skills and experience, according to new industry-developed professional frameworks

- To create an ALIA-accredited Library Certificate for people working at the entry-level in libraries with no formal qualifications

- To work with the university and TAFE sectors to strengthen the position of existing LIS courses through industry investment in student places and research.

The draft plan was discussed by ALIA members and other interested parties in a series of online Town Hall meetings (December 2020 – January 2021), culminating with a *Professional Pathways Summit* (February 2021) where library leaders, LIS educators, subject matter experts and new graduates worked together to map the way forward. The *Professional Pathways* project was ratified by the ALIA Board of Directors in June 2021 and a representational Professional Pathways Board was constituted to provide strategic oversight for the project.

The literature review and environmental scan involved a review of the diverse competency frameworks in order to examine the knowledge and skills relevant to LIS education and practice. The discussion is spread over three chapters of the *Technical Report*: an appraisal of the 'core competency' frameworks issued by national library and information associations (Chapter 2); an outline of the skills frameworks that relate to the work of library and information staff in specialised fields of LIS practice (Chapter 3); and insights into some of the skillsets required for future professional practice (Chapter 4). Questions relating to the ethics and values of the library and information profession are explored in the following chapter (Chapter 5).

The focus then moves to an examination of the current qualification pathways for LIS professionals (Chapter 6). The Australian context is presented, with a summary of the vocational education and training and the higher education pathways into the library and information field, which are supported by ALIA's accreditation processes. International dimensions are reflected in the qualifications pathways and professional recognition policies coordinated by the Library and Information Association of New Zealand Aotearoa (LIANZA), the Chartered Institute of Library

and Information Professionals (CILIP) in the United Kingdom and the American Library Association (ALA) in North America. To illustrate how shorter-form credentials have already been introduced as an approach to addressing the increasing demand for upskilling and re-skilling of the workforce, the pathways into the fields of accountancy, data management, law and architecture are also discussed.

Attention is paid to the emerging trends in professional qualification pathways, with the role of micro-credentials examined through both the lens of education institutions and the lens of industry and the professions (Chapter 7). Despite the complexities of shorter form credentials that exist at the current time, there is a strong belief in the value of career-long learning. The responsibilities for continuing professional development are shared by all stakeholders: clear and strong commitment is required by learners, educators, trainers, employers, government agencies and professional bodies (Chapter 8). The report concludes with a summary of the main themes and presents the key findings (Chapter 9).

2. Skills frameworks: core professional competencies

Skills or competency frameworks refer to listings of knowledge, skills, abilities, and other characteristics that contribute to successful work performance (Campion et al., 2011). Many types of commercial organisations develop competency frameworks as an employee management process, while professional bodies prepare frameworks to identify and map a particular skills landscape and/or to support the development of academic curricula for the appropriate professional qualifications.

There are abundant definitions of the key concepts of knowledge, skills and competencies in the academic and professional literature. For the purposes of the Technical Report, the definitions were drawn from the *European Qualifications Framework for Lifelong Learning*, which seeks to promote a common language between the education and training sector and the labour market (EU, 2018a).

Knowledge: "The outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study" (EU, 2020, a). It is further explained that knowledge is applied and put to use in skills and competences.

Skill: "The ability to apply knowledge and use know-how to complete tasks and solve problems" (EU, 2020b). A distinction is made between 'cognitive skills' which involve the use of logical, intuitive and creative thinking, and 'practical skills' which involve manual dexterity and the use of methods, materials, tools and/or instruments.

Competence: "The proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development" (EU, 2020c).

Although the term 'competency' has been used in the applied psychology literature for almost half a century (Campion et al., 2011), the literature review conducted by Dole (2013) highlighted the ambiguity and confusion over the definition and nature of 'competencies'. Beyond the 'hard skills' or practical and technical skills, emphasis has also been placed on 'soft skills' or 'personal attributes'. Fisher (2001) presented three categories of 'competency': *professional competencies*: skills and knowledge; *personal competencies*: traits, attitudes and behaviours; and *educational competencies*: competences obtained through the study of a body of knowledge. Corrall (2005) agreed that a blend of specialist, generic, personal and contextualised knowledge was an imperative for information professionals, while the metaphor of the double helix has been used to present the 'intertwined and complementary' areas of discipline knowledge and generic capabilities (Partridge & Hallam, 2004).

Frequently the terms 'skill' and 'competency' are used as synonyms, although in the EU's documentation, a distinction in scope has been noted: the term 'skill' tends to be contextualised by a specific setting and by defined tasks, whereas 'competence' has a broader connotation and "refers typically to the ability of a person – facing new situations and unforeseen challenges – to use and apply knowledge and skills in an independent

and self-directed way" (EU, 2020c). The Canadian Association of Research Libraries (CARL) presents the term 'competency profile', which is used by many professions to refer to listings or groupings of knowledge, skills and mindsets that define and contribute to professional success. The word 'mindset' is then defined as "a collection of attitudes, inclinations, or habits of mind useful in achieving an outcome" (CARL, 2020). In practice, as the terms 'skills framework' and 'competency frameworks' tend to be used interchangeably, no specific distinction is made in the *Technical Report*.

A selection of frameworks that have been developed to identify and describe the knowledge, skills and attributes (KSA) required for education and practice in the library and information science (LIS) field are examined. The primary focus is on the skills frameworks that have specific relevance to Australia, along with those published in countries that typically have closer social, cultural and political connections with Australia, for example New Zealand, the United Kingdom (UK), Canada and the United States (US). Endeavours to locate current and relevant frameworks from a wider spectrum of countries and/or regions proved challenging, and the lack of comparable resources is acknowledged to be a limitation of the study. While the research activities identified several pertinent competency projects currently being undertaken in Europe, Asia and South Africa, it was too early to access published information on the proposed frameworks.

The academic and professional literature reveals that, beyond skills and competency frameworks, other approaches are used to explore and articulate the knowledge and skills required by library and information professionals. These include competency analyses, the appraisal of job advertisements and position descriptions, and capturing the perceptions of people employed in the LIS sector through surveys, focus groups and interviews.

The skills frameworks developed by national library associations, including ALIA, LIANZA, CILIP and ALA, seek to present the 'core knowledge and skills' that support professional practice across the breadth of the LIS sector, and as such, they may be used to inform curriculum development in LIS education and training, staff development and career planning, or staff performance evaluations. It was found that, while the four core skills frameworks had many commonalities, there were variations in the structure, the degree of comprehensiveness and the categorisation of areas of knowledge and skills.

Australia

In 2018, ALIA's Education Advisory Committee (EAC) was tasked with the review of the association's suite of policy documents relating to education and qualifications. The policy document *Library and information sector: Core knowledge, skills and attributes* was replaced by a new one: *Foundation knowledge for entry-level library and information professionals* (ALIA, 2020e), which was ratified and adopted by the ALIA Board of Directors in December 2020. The significantly updated policy outlines the foundation knowledge required by an entry-level graduate employed in the library and information sector. It is stressed that, as ALIA accredits courses offered by both the VET sector (Diploma) and the higher education sector (Bachelor, Postgraduate Diploma and Master's degrees), the specific levels of knowledge and understanding should be interpreted within the scope of the language and descriptors used in relation to the different levels of the Australian Qualifications Framework (AQF, 2013).

As the policy presents broad areas of professional understanding, it is anticipated that academic documents, such as program curricula and subject guides, will provide a more granular view of the diverse areas of knowledge and skills. It is not expected that upon completion of their course, graduates will have gained practical skills and expertise in all the domains of knowledge that are listed, but educators should ensure that students are introduced to the full range of concepts during their studies. It is emphasised that LIS graduates will need to confidently meet the challenges of the changing nature of work, to accommodate innovation and change in practice over time, and to acknowledge that the range and scope of knowledge they require will be determined by the specific context of professional practice. Significantly, all LIS professionals should have a strong commitment to ongoing professional learning to support their individual career journey.

Ten domains of professional knowledge are presented in the policy, each with a listing of the conceptual topics which are typically relevant to the domain:

- The information environment
- Information services
- Information management
- Literacies and learning
- Digital technologies
- Community engagement
- Leadership and management
- Research
- Behavioural skills
- Professionalism.

Further context is provided by the outline of the attributes that characterise the Australian library and information professional workforce. LIS professionals should:

- Promote and uphold the core values of the LIS profession

- Understand, respond to and anticipate cultural, recreational, social, information and learning needs of clients, organisations and society

- Acknowledge and respect the significance and diversity of the histories, cultures and heritage of Australia's Aboriginal and Torres Strait Islander peoples

- Undertake the effective curation of data, information and knowledge through the processes of description, storage, organisation, retrieval, dissemination and preservation, in order to ensure that it can be freely accessed and used by clients

- Develop, deliver and evaluate information and recreational facilities, services, programs, sources and products to meet client needs

- Envision and plan future directions for the sector

- Advance library and information science in its adaptability, flexibility and autonomous application to information and recreational services

- Engage with clients, communities, other professions and industries.

Although the focus of the policy is conceptual rather than functional and time-bound, it emphasises the need for LIS professionals to have a blend of theoretical knowledge and practical skills, and to demonstrate professionalism and a commitment to lifelong learning in their career. Further details of ALIA's policy are discussed in section 2.1 of the *Technical Report*.

ALIA, ASA and RIMPA have arrangements for the joint accreditation of academic programs, underpinned by the policy document *Foundation knowledge, skills and attributes relevant to information professionals working in archives, libraries and records management* (ALIA, 2020f). In addition, the Australian Society of Archivists (ASA) presents its own specialised professional capabilities (ASA, 2021a), while the Records and Information Management Professionals Australasia (RIMPA) supports records management professionals (RIMPA, 2021a).

New Zealand

The Library and Information Association of New Zealand Aotearoa (LIANZA) first issued a competency framework which presented the *Domains of Professional Practice and the Bodies of Knowledge (BOKs)* in 2006. This framework has subsequently been reviewed and revised to provide greater clarity about the scope of the individual *BOKs* and their relevance to professional practice. The updated documentation was released in 2013 (LIANZA, 2013a).

The *Domains of Professional Practice* represent the cornerstones of effective LIS practice: professional knowledge, professional practice, professional communication and professional leadership (LIANZA, 2013a). The *BOKs* outline the eleven core areas of competency which are viewed as the relevant knowledge base for library and information professionals in New Zealand:

- The information environment, information policy and ethics

- Generating, communicating and using information

- Information needs and design

- The information access process

- Organisation, retrieval, preservation and conservation

- Research, analysis and interpretation of information

- Application of information and communication technologies (ICT)

- Information resource management and knowledge management

- Management in information organisations

- Assessing service effectiveness

- Awareness of Indigenous knowledge paradigms, which in the New Zealand context to Māori.

The details of the LIANZA framework are presented in section 2.2 of the *Technical Report*. LIANZA notes that while LIS professionals should be familiar with all areas of competency, they are expected to develop more in-depth knowledge within the particular area(s) of specialisation relevant to their employment. To assist with understanding and interpreting the BOKs, LIANZA introduced six clusters which seek to draw together groups of related competencies:

- **Cluster 1:** Understanding the information environment

- **Cluster 2:** Understanding information needs, generation and access

- **Cluster 3:** Understanding information resource and knowledge management
- **Cluster 4:** Understanding information and communication technologies
- **Cluster 5:** Understanding management in information organisations
- **Cluster 6:** Understanding Māori knowledge paradigms.

Members of LIANZA draw on the *Domains of Professional Practice*, the individual *BOKs* and the clusters of *BOKs* when applying for professional registration or revalidating their professional status.

United Kingdom

The Chartered Institute of Library and Information Professionals (CILIP) originally developed the *Professional Knowledge and Skills Base (PKSB)* in 2014 as a resource to articulate the ethics, values and skills that unite the different areas of library and information practice. A refreshed version was released in September 2021. The *PKSB* is described as the 'sector skills standard' for the information, knowledge, library and data profession: it presents an outline of the broad range of skills and knowledge required by those working in the wider information professions (CILIP, 2021a). It seeks to provide a common language within and beyond the sector and to serve as a benchmark for transferable skills (Cornish, 2020). The structure of the *PKSB* comprises three elements:

- **Element One:** Core principles
- **Element Two:** Professional expertise
- **Element Three:** Generic skills.

CILIP strongly believes that professional ethics and values are central to the library and information profession and places them at the centre of a wheel-shaped graphical interpretation of the *PKSB* (see section 2.3 of the *Technical Report*). The LIS professional's own organisational context, the wider environmental context, and commitment to professional development are also presented as core principles.

There are nine fields of professional expertise:

- Collection management and development
- Data management
- Information exploitation and use
- information governance and compliance
- Information management
- Knowledge management
- Literacies and learning

- Records management and archiving
- Research.

These are augmented by four areas of generic skills:

- Customer focus, service design and marketing
- Leadership, advocacy, influencing and personal effectiveness
- Strategy, planning and management
- Technology and communication.

Further granularity is provided for the each of the domains of professional expertise and generic skills, with between six and 12 topics listed for each skillset. Members of CILIP have access to additional descriptions relevant to the areas of knowledge and skills, as well as a comprehensive range of *PKSB* tools.

The Quality Assurance Agency (QAA) is the government body charged with oversight over the quality and standards in the higher education sector in the UK. The QAA manages the *Subject benchmark statements* which describe the field of study and the academic standards expected of graduates across the country (QAA, n.d.). The *Subject benchmark statement for librarianship, information, knowledge, records and archives* management, released in 2019, serves as a national quality assurance mechanism for LIS qualifications. A list of members of a series of review committees and reference groups (2000, 2007, 2015, 2019) for this subject benchmark statement reveals strong representation from the universities which offer library and information courses, the professional bodies and employers (QAA, 2019).

It is important to note that there are distinctions in terms of the purposes of ALIA's *Foundation knowledge* policy document (ALIA, 2020e) and CILIP's *PKSB* (CILIP, 2021a). The ALIA document explicitly states that it encompasses the knowledge required by an entry-level graduate who has successfully completed an ALIA-accredited LIS course (ALIA, 2020e). CILIP's *PKSB*, however, offers a whole-of-career focus. The value of the PKSB is demonstrated through the central role it plays across the multiple dimensions of the LIS profession:

For individual members

- As the framework for CILIP Professional Registration (CILIP, 2021b)
  - » Certification, Chartership and Fellowship applications
  - » Providing evidence of CPD for Revalidation
- As a self-assessment tool to guide personal and career development
- As a resource to demonstrate skills and expertise to employers

For employers

- As a framework for skills analysis, staff development and workforce planning

For learning providers

- As the accreditation framework for academic and vocational qualifications and training activities

For partnerships

- As the basis for apprenticeship development for the library, information and knowledge sectors

- As the basis for an accreditation framework for public library services.

The *PKSB* considers the skillsets which relate to the expansive range of the library, data, information and knowledge professions, encompassing the areas of professional expertise required for information management, data management, knowledge management, information governance and compliance, records management and archives. One of the principal outcomes for CILIP has been the shift away from an earlier reliance on academic qualifications for the formulation of professional status, to emphasise the critical role of knowledge, skills and expertise in shaping professional identity.

United States

The *Core Competences of Librarianship* document developed by the American Library Association (ALA) was released in 2009. The ALA states that the *Core Competences of Librarianship* define "the knowledge to be possessed by all persons graduating from ALA-accredited master's programs in library and information studies" (ALA, 2009). Library and information professionals who work in the different fields of the profession, e.g. school, academic, public, special and government libraries, as well as in other information and knowledge contexts, will require specialised knowledge and expertise beyond the core competencies.

The core competencies are currently categorised into eight fields of professional knowledge and practice (ALA, 2009). As part of a recent project to update the 2009 document, the ALA has released a draft of the *2021 ALA core competencies* (ALA, 2021b) for review and feedback, which has nine competencies (Table 1):

Table 1. ALA core competencies (2009) and ALA draft competencies (2021b)

ALA core competencies (2009)	ALA draft competencies (2021)
Foundations of the profession	Gateway knowledge
Information resources	Information resources
Organization of recorded knowledge and information	Organization of recorded knowledge and information
Technological knowledge and skills	Technological knowledge and skills
Reference and user services	Reference and user services
Research	Research and evidence-based practice
Continuing education and lifelong learning	Lifelong learning and continuing education
Administration and management	Management and administration
	Social justice

With regard to the new ninth category, Social justice, it is stressed that the attributes of social justice have been intentionally included in the draft revision, not only as a competency in itself, but also with the incorporation of the notions of social justice, equity, diversity and inclusion being incorporated into the full range of competencies.

Each competence area presents between three and eleven skillsets, with varying levels of scope and complexity. These principally focus on concepts, principles, methods and techniques: a graduate of an ALA-accredited academic program is expected to know and, where appropriate, be able to apply the range of the competencies. Very few generic, behavioural or soft skills have been included in the framework, although problem solving and critical thinking, and verbal and written communication are listed in the first category, Foundations of the profession.

ALA advises that the document can be used to inform the curriculum of an LIS degree program or to serve as a list of career development goals for early career library professionals, either independently or with their manager's support. The value of career-long learning is emphasised, as people will need to build on their basic knowledge to develop more advanced and specialised skills in their field of employment.

3. Skills frameworks: specialised professional competencies

One of the more challenging aspects associated with the development of skills frameworks has been described as the tension "between a desire for detail on one hand and a desire for parsimony on the other" (Campion et al., 2011). This challenge relates to both the number of competencies listed in a framework, as well as the level of detail used to describe each competency. The complexity is amplified by the fact that members of the LIS profession often align themselves with the particular field of practice in which they work, with the result that there is an array of skills frameworks which present the deeper perspectives of the competencies required in specialised areas of practice.

In terms of the content of skills frameworks for specialised areas of practice, two distinct approaches have been identified: there are 'comprehensive' frameworks which include the core competencies, as well as the knowledge and skills that are viewed as being relevant for a particular field of professional practice, and there are 'specific' frameworks which focus on the 'uniqueness' and the 'differences' inherent in particular skillsets. One of the key findings in this study is that the range of skills frameworks available is exceptionally broad; it went beyond the research scope to examine the skills requirements for all and every specialisation. It is emphasised that many of the skillsets required by LIS professionals working in specialised areas of practice, for example in acquisitions, document delivery or interlibrary loans, are considered from different perspectives by different agencies.

Tensions can exist in areas of professional practice which span the different LIS sectors, for example information organisation. Concerns have long been expressed that the technical skills for cataloguers and metadata librarians are downplayed or even ignored by library educators and library managers. It has been argued that the skills frameworks published by library associations and industry bodies do not accurately reflect the need for a strong grounding in metadata creation and maintenance, ontologies, database design, systems architecture, repository management etc. Traill and Patrick (2021) specifically noted that there was "no well-defined body of knowledge or competency list for library metadata analysis, leaving library staff with analysis-related responsibilities largely on their own to learn how to do the work effectively". A number of educational pathways have been proposed which blend academic study and industry experience (Mooney Gonzales, 2014; Tosaka & Park, 2018).

A range of skills frameworks were examined in the *Technical Report*, including those developed for public libraries, academic and research libraries, special libraries, health information services and school libraries, as well as for the allied fields of information and records management and archives.

Public libraries

It is acknowledged that public library leaders, managers and staff have a very broad remit if they are to successfully "develop sustainable, thriving services which support and enhance the prospects of all citizens" (CILIP & SCL, 2017). A selection of frameworks relevant to the public library sector was reviewed in section 3.1 of the *Technical Report*, focusing primarily on Australia, the UK and North America. The various documents are listed in Table 2.

Table 2. Skills frameworks and related documents for public libraries

Jurisdiction	Organisation	Date	Title
Australia	Australian Public Library Alliance (APLA) & ALIA	2021	*Standards and guidelines for Australian public libraries*
South Australia	Libraries of South Australia	2017	*One workforce: Transforming the South Australian public library network from the inside out*
Victoria	State Library Victoria	2014	*Skills framework for Victorian public libraries*
UK	CILIP & Society of Chief Librarians (SCL) (now Libraries Connected)	2017	*Public library skills strategy 2017-2030*
US	Webjunction (Gutsche & Hough)	2014	*Competency index for the library field (CILF)*
Ontario, Canada	Ontario Library Service	2015	*Competencies index for public library staff*
British Columbia, Canada	British Columbia (BC) Libraries Co-operative	2017	*Staff competencies hub*
Ohio, US	Ohio Library Council	2019	*Ohio public library core competencies*

In Australia, there are currently no national competency frameworks for the public library sector. The Australian Public Library Alliance (APLA) has recently worked with ALIA to update the public library guidelines. The project sought to develop a set of "national standards and guidelines for public libraries that reflect the evolving role of contemporary public libraries" (APLA & ALIA, 2021), while recognising the need for local interpretation. The essential operational components of contemporary public libraries have been presented in the framework for Australian public libraries, with emphasis placed on the key characteristics of a service culture. Depicted as three pillars of service management, service offering and service delivery, they collectively contribute to strong levels of community engagement and to positive individual and community outcomes. The skills of public library staff are included in the pillar of service delivery.

It is acknowledged that public library services benefit from a staffing mix that includes people with 'formal library qualifications' (i.e. ALIA-recognised academic

qualifications in LIS) who work at a senior level to undertake professional duties and to provide advice on collections, programs and services. Specialist staff, with non-library qualifications are typically employed "to enrich and support library programs or functions", as determined by specific community requirements (APLA & ALIA, 2021). Specialist fields may include, but are not limited to youth services, social work, multicultural services, education and training, information technology, digital literacies, project management, marketing and administration, or community liaison.

Further studies have investigated the anticipated skillsets required by public library staff working in the scenarios of the 'Creative Library' and the 'Community Library' presented in State Library Victoria's document *Victorian Public Libraries 2030: Strategic framework* (SLV, 2013). The *Skills framework for Victorian public libraries* (SLV, 2014b, Appendix 3) was structured into three areas of workplace skills: 10 Foundation skills, 30 Professional skills and 19 Behavioural skills. There was no presumption

that individual staff working in public libraries would require the full range of 59 competencies, but that the framework itself represented a holistic model for the spectrum of knowledge, skills and attributes required by different personnel working in diverse functions.

The role of public libraries in the context of digital culture and creativity was examined by Wyatt, McQuire and Butt (2015). The authors acknowledged that library participation has been driven by a range of 'non-traditional' services and activities underpinned by technological developments. The investment in creative literacy programs and facilities such as coding workshops, media labs, design training and recording equipment "requires a combination of social, technical and pedagogical skills" (Wyatt et al., 2015). While the report did not present a specific framework of the skills required, it was recognised that there was value in employing a new type of staff member with specialist skills from other disciplines.

In the UK, CILIP and the Society of Chief Librarians (SCL) (now Libraries Connected) drafted a vision which places 'information and library skills and values at the heart of public service delivery' with a commitment to ensure that the expertise of the profession is recognised and valued (CILIP & SCL, 2017). The skills strategy for public libraries outlines nine aims for the public library workforce in England:

- Attracting, retaining and developing talent
- Targeting inclusion, diversity, representation and equality
- Investing in professional skills and ethics
- Promoting leadership at every level
- An open, inclusive approach to professionalism
- Lowering the barriers to entry
- Commitment to continuing professional development
- Valuing transferable skills
- Looking beyond the sector.

The beliefs and ideas that underpin these nine aims resonate with the goals of ALIA's *Professional Pathways* initiative, for example by striving to ensure that the public library workforce reflects and represents the diversity of the communities served and by continuing to recognise LIS qualifications while also accepting that specialist expertise and skills drawn from other disciplines add value to the sector. CILIP's strategy identifies that the goal of designing multiple pathways into the profession by offering academic and non-academic routes should be backed up by the commitment to career-long learning through CPD. There is also support and encouragement for people who choose to

move in and out of the public library sector, with the realisation that their mix of skills and professional experience will be invaluable (CILIP &SCL, 2017).

In the US, the *Competency index for the library field* (CILF) (Gutsche & Hough, 2014) has offered a comprehensive approach to the knowledge and skills required in 'a vibrant and relevant library'. The competency index was compiled by WebJunction, a program of OCLC Research, which focuses on the development of the knowledge, skills and confidence of public library staff through online training programs and webinars. There are five groupings of competencies: core technology competencies, personal/interpersonal competencies, library collections, public services and library management. The *CILF* emphasises the significance of core technology competencies as "every position [in the library] requires some level of comfort with computers" (Gutsche & Hough, 2014).

The *CILF* was subsequently adapted by Ontario Library Service (2015) and British Columbia (BC) Libraries Co-operative (2017). Ohio Library Service (2019) developed a matrix approach where 16 Foundational competencies are correlated with 16 different areas of public library practice or professional roles.

Academic and research libraries

The skills frameworks relating to academic librarianship, as well as to research and data librarianship as a more specialised field of practice are examined in section 3.2 of the *Technical Report*. Commonalities were apparent in the frameworks published in Australia, Canada, the UK and the US (Table 3), and there was evidence that the structure and content of some frameworks have been influenced by others. However, one of significant gaps in the documentation related to published skills frameworks for LIS professionals employed in TAFE libraries. As it is recognised that there are distinctions between the skills required for practice in the VET sector and those applied by library staff in academic and research libraries, the opportunity exists for further work to be undertaken in this area.

Table 3. Skills frameworks and related documents for academic libraries

Jurisdiction	Organisation	Date	Title
Australia	CAUL	2016	*Principles and guidelines for Australian higher education libraries*
Australia	CAVAL	2017	*Competencies for academic and research librarians*
Canada	CARL	2010	*Core competencies for 21st century CARL librarians*
Canada	CARL (DeLong et al.)	2015	*8Rs Redux: CARL libraries human resources study*
Canada	CARL	2020	*Competencies for librarians in Canadian research libraries*

In Australia, at the national level, the Council of Australian University Librarians (CAUL) promotes the *Principles and guidelines for Australian higher education libraries* (CAUL, 2016). As the title infers, this document presents guidance about how university libraries can contribute towards institutional and national higher education performance outcomes, particularly by highlighting the staff members' unique professional skills and capabilities. While the document is referred to as a 'quality framework' rather than a 'skills framework', one of the central themes is the significance of the evolving professional expertise that has enabled "ubiquitous access to information, collections, learning objects, and research outputs regardless of location… and for transforming the way that students and the academy engage with information" (CAUL, 2016).

CAUL indicates that the library contributes to institutional effectiveness and the achievement of the university's mission as a result of individual staff members having "the required knowledge, discipline expertise, skills, attributes, qualifications, capabilities, work experience and/or professional development, for the diverse roles they perform to meet the needs of the university" (CAUL, 2016). While there are no definitions or descriptions of the specific skill sets that are required to deliver high quality research, learning and teaching support, the Melbourne-based organisation, CAVAL, offers some guidance.

CAVAL is a co-operative of ten academic libraries, predominantly in Victoria. One of the committees of CAVAL, the CAVAL Professional Development Interest Group (CPDIG) was responsible for the developing and publishing the document *Competencies for academic and research librarians* (CAVAL, 2017). The CAVAL framework has been described as "a holistic compendium of core competencies for librarians working in academic libraries in an intense research environment"

(CAVAL, 2017), with emphasis to be placed on the specific nature of the individual academic/research library. The document presents seven categories of competency:

- Context knowledge
- Personal skills
- Leadership and management
- Collections and discovery
- Learning and teaching
- Research and publishing
- Professional engagement.

Each category encompasses a number of knowledge areas, each of which includes more detailed topics of knowledge and understanding.

The framework is an adaptation of the Canadian Association of Research Libraries (CARL) resource, *Core competencies for 21st century CARL librarians* (CARL, 2010). CARL, has published an updated version of their competency framework (CARL, 2020). In developing the new framework, CARL adopted "an aspirational approach… with firm grounding in the fundamental principles of the profession" (CARL, 2020) with the goal of aligning professional values with the knowledge, skills and mindsets required by a successful academic library sector in Canada. It is assumed that Canadian academic librarians hold a degree in library and information studies, augmented by highly specialised skillsets in research and practice. Emphasis is placed on 'soft' skills, personal qualities and mindsets that contribute to professional success and, by extension, to organisational success:

- Active learning and adaptation
- Collaboration
- Consultation and communication

- Curation and preservation
- Equity, diversity & inclusion
- Engagement & participation
- Evaluation & assessment
- Leadership & facilitation
- Vision & innovation.

The CARL work was informed by two major Canadian research projects: *The future of human resources in Canadian libraries, or the 8Rs study* (Ingles et al., 2005), and the *8Rs Redux* study (DeLong et al., 2015). These research activities focused on identifying the priority skills and personal attributes that were sought after by library leaders, as well as the comparative value of the MLIS degree and other non-MLIS qualifications. The *8Rs Redux* study revealed that, since the initial data collected in 2003, the ratio of positions held by librarians and those held by non-MLIS professionals had shifted, with an increase evident for the cohort of *other professionals* (+7%). The findings indicated that 21% of professional staff in CARL libraries were recorded as *other professionals*, i.e. staff employed across a range of functional areas such as information technology, business and finance, human resources, facilities, communications, statistical/data analysts, subject experts (with PhD), copyright and archives.

The knowledge and skills requirements for the roles of research librarians and data librarians have been outlined in a number of academic resources, including some of the frameworks for academic libraries. It was found that, as the research lifecycle represents a common structure for presenting the required areas of knowledge and skills, there are many commonalities across the different resources (Table 4).

Table 4. Skills frameworks and related documents for research and data librarianship

Jurisdiction	Organisation	Date	Title
Australia	ANDS (now part of ARDC)	n.d.	*ANDS information specialists and data librarianship skills*
Australia	Kennan	2016	*Data management: knowledge and skills required in research, scientific and technical organisations*
Australia	ARMS	2021	*Australian Research Management Society (ARMS) accreditation program*
UK	RLUK	2021	*The role of academic and research libraries as active participants and leaders in the production of scholarly research*
UK	RLUK	2011	*The value of libraries for research and researchers*
UK	RLUK	2012	*Re-skilling for research*
UK	RLUK (Greenhall)	2019	*Digital scholarship and the research library*
US & Europe	Joint Task Force: ARL, CARL, LIBER & COAR	2016	*Librarians' competencies for e-research and scholarly communication*
US	Schmidt & Shearer	2016	*Librarians' competencies for research data management*

Kennan (2016) highlights the importance of library staff having the relevant contextual knowledge about the research environment:

- The institutional research environment
- Funding agency policies
- Appropriate subject speciality knowledge
- Discipline-specific research life cycles and cultures, methods and processes
- Scholarly communication
- Intellectual property and licensing.

Following its establishment in 2018, the Australian Research Data Commons (ARDC) has continued the work originally led by the Australian National Data Service (ANDS) to develop the skills and capacity of staff working in different areas of the field (ANDS, n.d.-b):

- Data management
- Metadata management
- Using data (data as a resource)
- Developing, delivering or arranging:
- Referral to sources of information and advice, either within or external to the organisation.

The Australasian Research Management Society (ARMS) is a professional body with the mission to develop and promote best practice for research management, to develop research management professionals and to promote the profession of research management (ARMS, 2021a). ARMS has collaborated with CAUL to develop the *Open Research Toolkit* (CAUL & ARMS, 2021a) which will support academic and research institutions implement and further develop open research policy, strategy and practice.

ARMS highlights the importance of a mix of strong professional development, training and networking, along with supporting knowledge frameworks. The ARMS knowledge base encompasses six core areas of knowledge, and as it is presented with three levels of knowledge (Foundation, Management and Leadership) with the associated assumption that there will be progression from one level to the next, the term *ARMS Professional Development Framework (PDF)* is used (ARMS, 2021c). The six core areas of knowledge are listed as:

- Contextual knowledge
- Relational knowledge
- Technical knowledge
- The research funding cycle
- Higher Degree by Research candidature cycle
- Ethics and integrity
- Data and information management

Looking to the United Kingdom, Research Libraries UK (RLUK) has undertaken a major research project to explore the current and potential future roles of research and academic libraries within the scholarly research ecosystem (RLUK, 2021a). Given that the research report involved consultation with a wide range of stakeholders and has been amplified by a number of detailed case studies, it can be considered 'one of the most comprehensive accounts of the role of libraries as research partners and leaders' (RLUK, 2021a).

The report discusses the knowledge, skills and expertise that library staff contribute to scholarly research projects, covering eight areas of practice, each with its own facets:

- Collections-based skills and knowledge
- Digital skills and expertise
- LIS/heritage studies research expertise
- Literature search and review skills
- Supporting public engagement and impact
- Bid development (research grants)
- Offering interdisciplinary perspectives
- Networking.

This scoping study built on three earlier studies: *The value of libraries for research and researchers* (RLUK, 2011), *Re-skilling for Research* (RLUK, 2012) and *Digital scholarship and the role of the research library* (Greenhall, 2019).

The specialised skills needed by research librarians working in the area of scholarly communication also feature in the frameworks developed by the Joint Task Force for Librarians' Competencies in E-Research and Scholarly Publishing and the North American Serials Interest Group (NASIG) (Table 5).

Table 5. Skills frameworks for scholarly communication librarians

Jurisdiction	Organisation	Date	Title
US	Joint Task Force for Librarians' Competencies in E-Research and Scholarly Publishing (Calarco et al.)	2016	*Librarians' competency profile for scholarly communication and open access*
US	NASIG	2020	*NASIG core competencies for scholarly communication librarians*
US	NASIG	2021	*NASIG core competencies for core competencies for electronic resources librarians*
US	NASIG	2016	*NASIG core competencies for print serials management*
Australia	ANU	2021	*Comparison of competency lists for scholarly communication in relation to their use in a research study: 'Scholarly communication knowledge and skills in Australasian research institutions'*

The principal fields of professional practice encompass scholarly publishing services, open access repository services, copyright and open access advice, and assessment of scholarly resources. In addition to the multiple skill sets presented in these frameworks, the scholarly communications librarian will need to draw on a suite of personal strengths, such as collaboration, interpersonal and communication skills, and comfort with change and ambiguity (NASIG, 2020).

A recent research study conducted by the Australian National University (ANU, 2021) involves an examination of two of the frameworks: the *Core competencies for scholarly communication librarians* (NASIG, 2020) and the *Librarians' competencies profile for scholarly communication and open access* (Calarco et al., 2016) with the goal of identifying the competencies required by Australasian library and information staff working in the area of open access policies and the scholarly communication landscape more broadly, or in the specific area of the publishing processes (Kingsley, 2021a).

Special library and information services

In Australia, the ALIA Special Libraries Working Group (ALIA, 2021b) provides advice on the wide-ranging issues that relate to special libraries. ALIA has collated details of the activities and achievements of special libraries in a recent report: ALIA working for special libraries 2016-2021 (ALIA, 2021c). One of the priorities was to determine the value of the sector as evidenced by the role of special librarians and the unique skillsets and attributes of special library and information professionals (Howard, 2017). Consideration is given to the role of information professionals in ensuring a strong user focus in the areas of access to and management of digital information, and the evaluation of information sources, services and systems. Special librarians generally have responsibility for the content and context of information and data, as opposed to the technical infrastructure itself. The various skills frameworks that are discussed are presented in Table 6.

Table 6. Skills frameworks for special librarians

Jurisdiction	Organisation	Date	Title
US	SLA	2016	*Competencies for information professionals*
Australia	ALIA HLA	2018	*ALIA HLA competencies*
UK	CILIP	2021	*PKSB: Healthcare sector guide*
US	MLA	2017	*MLA competencies for lifelong learning and professional success*
US	Townsend et al.	2017	*The systematic review competencies framework*
UK & Ireland	BIALL	2016	*BIALL professional skills framework*
US	AALL	2018	*AALL Body of knowledge*
US	FLICC	2011	*Competencies for federal government librarians*

It is important to note that, as shown in Table 6, some groups of special librarians have developed competency frameworks for their particular area of professional practice.

Business information professionals

In the US, the Special Libraries Association (SLA) has published the *Competencies for information professionals* (SLA, 2016) to specifically focus on the skills required by information professionals who work intensively with information, knowledge and data. Business information professionals take a holistic view of the role of information and knowledge in organizations and communities (SLA, 2016). The six core competency areas in the SLA framework encompass:

- Information and knowledge services
- Information and knowledge systems and technology
- Information and knowledge resources
- Information and data retrieval and access
- Organisation of data, information and knowledge assets
- Information ethics.

SLA also highlights the generic or 'enabling' personal and interpersonal competencies which are viewed as being vital for professional success and career development, e.g. Effective oral and written communication skills, including influencing skills; Relationship building, networking, and collaboration, including the ability to foster respect, inclusion, and communication among diverse individuals; Leadership, management and project management; Marketing; and Lifelong learning. Information professionals also need to be able to articulate the value of their skills to their employers and clients, particular in situations where they are working alone or in a small team in a large, complex organisation, especially when it is often difficult for customers of the information centre to understand precisely what business information professionals do (Matarazzo & Pearlstein, 2017).

Health library and information professionals

One of the library and information sectors which has been described as "information intensive and complex" (Sen et al., 2014) is the field of health librarianship. For many years, those working in health library and information services have been working to develop and refine their understanding of the changing roles played by health information professionals, particularly in terms of the current and future skill sets required for professional practice. The wide variety of roles has been examined, grouped together under the general categories of the librarian as information provider and educator, the librarian who analyses information and manages knowledge, the librarian within research and evidence-based practice, and the librarian as decision maker.

As a national group of ALIA, Health Libraries Australia (HLA) is the professional organisation which represents members of the health library sector in this country. ALIA HLA outlines the broad reach of health library and information professionals, with members working in hospitals and other clinical facilities, research institutes, regional health centres, professional colleges, universities, not-for-profit and community organisations, and parts of public library services (ALIA HLA, 2021a). By providing their clients with access to secure and trustworthy sources of authoritative information and by ensuring that their services are recognised as critical and fundamental to the information governance structures of the parent organisation, the expertise and experience of these qualified health library and information professionals underpins the delivery of evidence-based healthcare which all Australians depend on.

Preliminary work on a skills framework, informed by the framework introduced by the Medical Library Association (MLA) in the US (MLA, 2007) was undertaken in a major research project which culminated with the report *Health librarianship workforce and education: Research to plan the future* (ALIA HLA, 2011). The rapidly changing health services environment in this country prompted HLA to subsequently review and update the HLA competencies (ALIA HLA, 2018). The work involved a comparison of the existing Australian competencies with the international equivalents, including the US (MLA, 2017) and the UK (NHS Health Education England & CILIP, 2014), although it was found that no relevant comparisons could be made for New Zealand, Ireland or Canada (Ritchie, 2020).

HLA believes that a first qualification in LIS awarded by an ALIA-accredited university or TAFE education provider course represents the necessary entry point into the LIS profession in Australia. On top of the foundational knowledge acquired through study, practical work experience and ongoing professional development are core requirements for health librarians. The HLA competencies therefore represent a set of specialised skills which build on and extend the knowledge, skills and attributes of an entry-level library and information professional (Ritchie, 2020). Eight competency areas are presented in the framework:

- The health environment
- Reference and research services
- Resources
- Leadership and management
- Digital, ehealth and technology
- Health literacy and teaching
- Health research
- Professionalism.

In the UK, NHS Health Education England & CILIP (2021) have developed a new *Healthcare sector guide* which provides an interpretation of CILIP's PKSB (CILIP, 2021a) for library and information professionals working in the healthcare sector.

In 2017, the Medical Library Association (MLA) released its new framework for American health library and information professionals, *MLA competencies for lifelong learning and professional success* (MLA, 2017). The document was described as "a concise, clear and comprehensive, and forward-looking guide to lifelong learning and success for health information professionals" (MLA, 2017). The broad term of 'health information professional' has been used in the US to embrace medical librarians, health sciences librarians, health information specialists, informaticists, and other professional groups. The MLA framework encompasses six competencies:

- Information services
- Information management
- Instruction and instructional design
- Leadership and management
- Evidence-based practice and research
- Health information professionalism.

The majority of skills and activities tend to reflect the broad scope of library and information work in academic and research institutions, with reference made to responsibilities in areas such as scholarly publishing, data management, critical appraisal of research, and instructional technologies. The specialised context of health information is accentuated in the skills and activities relating to systematic reviews, evidence-based research, national health policy etc. The *Systematic review competencies framework*, developed by Townsend et al. (2017), is an example of a framework for a specialised area of health library and information practice.

Legal library and information professionals

Law librarianship is recognised as another specialised area of library and information practice. Law librarians work in a variety of situations, including academic law libraries, court libraries, parliaments, government departments, private law firms and barristers' chambers. There are a number of national library associations which support and promote the interests of law librarians and legal information professionals, including the Australian Law Librarians' Association (ALLA), New Zealand

Law Librarians' Association (NZLLA), British and Irish Association of Law Librarians (BIALL), American Association of Law Libraries (AALL), Canadian Association of Law Libraries (CALL) and the Organisation of South African Law Libraries (OSALL). The International Association of Law Librarians (IALL) is a worldwide network of law library professionals who are committed to sharing legal knowledge and promoting access to legal information (IALL, 2021). The importance of professional development for law librarians is acknowledged by all these library associations, with annual conferences and a variety of training activities organised for their members. However, the concept of a competency framework has only been addressed by two organisations: BIALL and AALL.

The *BIALL professional skills framework* was developed in 2016. The goal was to draft a framework which offered a detailed overview of the skills and experience which legal information professionals need to carry out their role (BIALL, 2016). It was designed to supplement, rather than replace other frameworks, such as CILIP's PKSB. The BIALL framework is structured around broad domains, each with a number of topics which relate to typical activities in a law library:

- Research
- Collection development and management
- Cataloguing and classification
- Financial management
- Compliance and ethics
- Customer service
- Training and presentations
- Marketing and organisational awareness
- Soft skills
- Information technology.

Every topic is presented with the typical knowledge requirements and expected skills, mapped to three levels of expertise: basic awareness, good understanding, and comprehensive understanding. The resulting document is extremely detailed and, arguably, very task oriented.

The *AALL Body of Knowledge* (BOK) was designed "to serve as a blueprint for career development" for contemporary legal information professionals (AALL, 2018). It presents six domains of knowledge, defined as core content areas of expertise, which cover both competencies and skills:

- Professionalism: leadership at every level
- Research + analysis
- Information management

- Teaching + training
- Marketing + outreach
- Management + business acumen.

The AALL framework is more conceptual in scope than the BIALL framework. Most of the competencies reflecting the 'core' LIS competencies, with very few specific competencies relating to the law library environment. Knowledge of the law and legal materials sits within the domain of Research and analysis, and the promotion of law libraries and legal information within the larger community is included in Marketing and outreach.

Government library and information professionals

Government libraries represent a category of special library and research service, operating within local government, state government and national government contexts, which are usually dedicated to the specialised subjects and collections of government departments. Government librarians support and contribute to policy development and analysis, the provision of tailored advice, and the management of government information resources. As there is no skills framework tailored to the work of government library and information professionals in Australia, the most relevant documents are considered to be those published in the US: SLA's *Competencies for information professionals* (SLA, 2016) and the Federal Library and Information Center Committee's (FLICC) *Competencies for federal government librarians* (FLICC, 2011).

The FLICC framework presents two areas of competency: foundational competencies and functional competencies (FLICC, 2011). Foundational competencies are described as "basic or commonplace competencies shared across many functional areas and career stages", whereas functional competencies represent the knowledge, skills and attributes needed to perform in "the major functional responsibilities or duties that define the profession" (FLICC, 2011).

The immediate context of the government agency has primary importance, with the expectation that library and information professionals will develop their understanding of the parent organisation, especially to align the services with the mission and goals of the agency and to advocate for strengthening the library's place and role in the agency. The need to have specialised knowledge about the subject area of the agency and to understand the culture and information seeking behaviours of the disciplinary specialists was also critical.

Teacher librarians

The term 'school library' is the general term that is used to refer to the library and information service in an educational environment, to support teachers and students at either the primary or secondary level. Other terms include the 'library resource centre', 'library media centre' and 'library learning commons'. It has been noted that while libraries are – or should be – an integral part of the school infrastructure, "it is only in countries such as Australia and the USA that most schools… have professional staff who are both teachers and librarians" (Herring, 2007, p.27). They tend to be known as 'teacher librarians' in Australia and 'school librarians' in the UK and the US. The educational requirements and professional responsibilities of teacher librarians are discussed in section 3.3.5 of the *Technical Report*. The international perspectives encompass Australia, UK, US and Canada (Table 7).

Table 7. Skills resources for teacher librarians

Jurisdiction	Organisation	Date	Title
Australia	ALIA & ASLA	2016	*Statement on teacher librarian qualifications* *Statement on teacher librarians in Australia*
Australia	ASLA	2018	*What is a teacher librarian?*
Australia	AITSL	2021	*Australian professional standards for teachers*
Australia	ALIA Schools	2014	*Teacher librarian practice for the Australian professional standards for teaching*
UK	CILIP Schools Group (Band et al.)	2019	*PKSB for school librarians: A breakdown of the categories*
US	AASL	2018	*National school library standards for learners, school librarians and school libraries*
US	Future Ready Schools	2018	*Future ready librarians*
Canada	CSL	2020	*Leading learning: Standards of practice for school library learning commons in Canada*

In Australia, teacher librarians play three major roles as curriculum leaders, information specialists, and information services managers, with their roles focusing on collaboration with other stakeholders, information skills development, emerging technologies and library management. ALIA and the Australian School Library Association (ASLA) have long supported the importance of school library staff holding qualifications in both classroom teaching and teacher librarianship to ensure that they provide the professional expertise required for the complex roles of teacher librarians (ALIA & ASLA, 2016a). The statement on teacher librarian qualifications, issued jointly by ALIA and ASLA, was first released in 1994, and subsequently revised in 2009 and 2016. This statement outlines the imperative for staff to hold formal qualifications in education and in librarianship or information management, at the same level as classroom teachers.

The route to becoming a teacher librarian is open to people with an undergraduate degree in education, awarded by an initial teacher education program (ITEP) accredited by the relevant State- or Territory-based authority responsible for teacher registration. Candidates then study for a postgraduate qualification in Teacher Librarianship, which is accredited by ALIA. At the current time, the Master of Education (Teacher Librarianship) program offered by Queensland University of Technology (QUT) is in teach-out mode (concluding in mid-2022), which leaves the course offered by Charles Sturt University (CSU) as the only higher education institution accepting students (ALIA, 2020b).

The *Australian professional standards for teachers* (AITSL, 2011) represent the framework of standards for teachers to define the elements of high quality, effective teaching to deliver improved educational outcomes. The teacher librarian

community has published an interpretation of the teaching standards to provide guidance about their application to professional practice in school libraries, with the document *Teacher librarian practice for the Australian professional standards for teaching* published by ALIA Schools in 2014.

In the UK, CILIP's *PKSB* (CILIP, 2021a) forms the basis for the professional knowledge and skills required by school librarians and the committee of CILIP's School Libraries Group has interpreted the *PKSB* for members working in school libraries.

The situation is more complex in the US, however. The American Association of School Librarians (AASL), a division of the ALA, is the national professional association for teacher librarians and the school library community (AASL, 2021a). The AASL has published the *National school library standards for learners, school librarians and school libraries* (AASL, 2018a) which emphasises the critical connection and interaction between the learner and the school librarian. The AASL has stated that school librarians should hold a master's degree in LIS accredited by the ALA, or a master's degree with a speciality in school librarianship recognised by AASL in an educational unit accredited by the Council for the Accreditation of Educator Preparation (CAEP) (AASL, 2021b), which combines academic study and professional preparation for work in library and information science, education and technology (AASL, 2016).

The knowledge base that underpins the school librarian preparation standards bears a close relationship with several sets of educational standards, especially the *National school library standards for learners, school librarians, and school libraries* (AASL, 2018a), the International Society for Technology Education's *ISTE standards for educators* (ISTE, 2017) and the Interstate Teacher Assessment and Support Consortium's *InTASC model core teaching standards and learning progressions for teachers* (InTASC, 2013). Another dimension of standards for school libraries is evident in the *Future Ready Schools* initiative, launched in 2014. The goal was to offer schools "a structure for digital learning visioning, planning and implementation" (Future Ready Schools, 2014a) to encourage the use of educational technology strategies to elevate student achievement. The *National school library standards* (AASL, 2018a) have been 'crosswalked' with the *Future Ready Librarians* framework (Future Ready Librarians, 2018b) (AASL, 2018c), as well as with the *ISTE standards for learners* (ISTE, 2016) and the *ISTE standards for educators* (ISTE, 2017) (AASL, 2018d) to help school librarians engage with educators and educational administrators about their roles and the contributions they can make to improved student learning outcomes.

In 2014, the Canadian Library Association (CLA) released a national set of standards for school librarians, entitled *Leading learning: Standards of practice for school library learning commons in Canada* (CLA, 2014). Responsibility for the standards has since moved to Canadian School Libraries (CSL) and the publication is now a living document which is continuously updated (CSL, 2020a). CSL has made a concerted effort to link the standards of practice to the entry-level training programs offered by Canadian universities and to professional learning.

Allied professions

Graduates from LIS programs may also be employed as information managers, archivists or records managers. The CILIP Professional knowledge and skills base (*PKSB*) presents the broad range of skills and knowledge required by people working in the information, knowledge, library and data profession (CILIP, 2021a), while ALIA's *Foundation knowledge for entry-level library and information professionals* is prefaced by the statement that the phase 'library and information agencies' includes libraries, archives, records and cultural agencies (ALIA, 2020e). Nevertheless, there are also specialised competency frameworks which reflect the skills requirements for the allied professions. In the *Technical Report*, the frameworks and research studies which inform the education and training needs of information professionals working in these different fields are examined (section 3.3.6).

Galleries, Libraries, Archives and Museums (GLAM)

The acronym GLAM encompasses 'galleries, libraries, archives and museums' and refers to the institutions which collect, maintain and provide access to cultural heritage resources. Sometimes the concept of 'galleries' is excluded to ensure that the focus is limited to non-commercial collections (thus the acronym LAM), and sometimes the term is expanded to GLAMR to include the field of records management. For many years there has been discussion in the professional literature about GLAM convergence (Warren & Matthews, 2018a, 2018b) which examines the ideas relating to shared programming, collaborative creation or management of digital collections (Kennan & Lymn, 2019). A number of studies have examined the discrete and common skills that may be determined by the different workforce contexts within the GLAM sector (Table 8).

Table 8. Skills frameworks for the GLAM sector

Jurisdiction	Organisation	Date	Title
Australia	Howard	2015	*Educating cultural heritage information professionals for Australia's galleries, libraries, archives and museums*
Australia	Hider & Carroll	2018	*Prospects for a combined GLAM curriculum*
US & Europe	The Salzburg Curriculum	2011	*The Salzburg curriculum*

An investigation into the current and future knowledge and skills required by information professionals working in GLAM institutions was conducted by Howard (2015), with the primary focus being on the information management competencies used when working with cultural heritage materials. The research findings revealed 25 knowledge concepts and 15 generic skills. While areas of commonality have been summarised as knowledge and skills for information organisation and management; legal and ethical matters associated with the mission of institutions, such as disability access and copyright; data skills, such as visualisation and preservation; and content design and production" (Hider & Carroll, 2018), it is acknowledged that there will still be domain-specific skills requirements, based on the distinctive traditions and user expectations that have developed over time across the different types of institution.

In late 2011, the Salzburg Global Seminar (SGS) and the Institute of Museum and Library Studies (IMLS) sponsored an event where library and museum professionals from 31 countries came together to consider the development of a framework that could underpin a unified library and museum curriculum. The objective for the meeting was founded on the premise that common skillsets were needed to deliver collections and services "in a connected and participatory world" (The Salzburg Curriculum, 2011a). Participants at the forum considered the concepts, knowledge, skills and processes that library professionals and museum professionals would all need as they looked beyond their collections to engage with their communities.

Over the years, some LIS education programs in Australia endeavoured to address these issues of professional convergence through a multi-disciplinary approach to course offerings. However, LIS educators reported that they found it disconcerting to have multiple professional associations involved in course accreditation, e.g. ALIA, ASA and RIMPA, arguing that they faced significant challenges to adequately meet the individual and highly specific needs of the different associations (Hallam, 2013). In 2014-2015, ALIA

partnered with ASA and RIMPA to develop a new policy document, *Foundation knowledge, skills and attributes for information professionals working in archives, libraries and records management*, which articulated the convergence of skillsets and could be used as the foundation for joint accreditation processes. The policy was reviewed in 2020 (ALIA, 2020f).

The *Foundation knowledge, skills and attributes* policy (ALIA, 2020f) presents the national professional standards for the joint accreditation of entry-level courses in archival, library and records management studies. Four Australian universities currently offer joint ALIA/ASA/RIMPA accredited programs: Charles Sturt University, Curtin University, Monash University and University of South Australia.

The knowledge and skills framework has four core elements, each with a number of skillets. The focus is clearly on the practical dimensions of the information lifecycle, including contexts, purposes, processes and practices, and products and services, presented in a neutral way so that the information management concepts may be appropriately interpreted and applied by librarians, archivists or records managers.

Archives

During the first decade of the 21st century, a number of European countries undertook an exercise to define the competencies of archivists. The wide range of skills frameworks that resulted caused concern; to resolve the difficulties, collaborative efforts were made by the International Council for Archives (ICA) section for professional associations (ICA/SPA) and the European branch of ICA (EURBICA) to develop a common competency framework for Europe. However, the project team found that "it would have been very difficult, possibly impossible, to develop a single model for Europe, taking into account the different traditions and working environments" (Martinez & Whatley, 2011). The alternative strategy, therefore, was to draft a

handbook on how to develop a competency framework that would be appropriate for the given context, the immediate archival heritage and the local standards. In the *Technical Report*, the skills frameworks developed by a number of national professional associations are reviewed (Table 9).

Table 9. Skills frameworks for the archives sector

Jurisdiction	Organisation	Date	Title
Australia	ALIA, ASA & RIMPA	2020	*Foundation knowledge, skills and attributes for information professionals working in archives, libraries and records management*
Australia	ASA	2021	*ASA professional capabilities*
UK	ARA	2017	*ARA competency framework summary*
US	SAA	2016	*Guidelines for a graduate program in archival studies*
Canada	Daniel et al.	2020	*Preliminary competency framework*

In Australia, prior to the introduction of the joint accreditation arrangements of ALIA, ASA and RIMPA, the ASA managed the process for accrediting archival studies courses on its own. The ASA has its own professional body of knowledge, referred to as the *ASA Professional capabilities* (ASA, 2021a). The framework encompasses:

- Knowledge and skills
- Professionalism
- Rights, justice and the law
- Values and ethics
- Context and organisations
- Leadership and innovation
- Critical reflection.

The Archives and Records Association (ARA) is the principal professional body for archivists, archive conservators and records managers in the UK and Ireland. ARA's activities include providing guidance and advice about careers and employment in the field. The ARA *Competency framework* (ARA, 2017) underpins the association's professional recognition program and the recommended content for postgraduate courses in archives and records management.

In the US, the Society of American Archivists (SAA) has published a set of *Guidelines for a graduate program in archival studies* (GPAS) (SAA, 2016a). While the SAA acknowledges that there is a role for interdisciplinary studies, such as those that link archival, library and museum knowledge, a specialised archival education program needs to focus on the core knowledge of the discipline. A clear distinction is made between graduate education, which is both academic and professional, and archival training, which focuses on acquiring practical knowledge or building skills.

SAA's *Guidelines* have been endorsed as an interim measure in Canada. In reviewing a number of international resources, a preliminary competency framework for Canadian archivists focuses on the range of professional and administrative tasks to include both customer-focused and back of house responsibilities (Daniel et al., 2020).

Records and information management

Further skills frameworks have been developed for professional roles in records and information management (Table 10).

Table 10. Skills frameworks for records and information management

Jurisdiction	Organisation	Date	Title
International	SFIA Foundation	2021	*Skills framework for the information age*
Australia	NAA	n.d.	*Capabilities for information management professionals*
Australasia	RIMPA	2019	*Statement of knowledge for recordkeeping professionals*
UK & Ireland	ARA	2017	*ARA competency framework summary*
US	ARMA International	2017	*Records and information management core competencies*

At the international level, the SFIA Foundation, an international not-for-profit organisation which is a collaborative effort from IT professionals, educationalists and HR managers from around the world, has developed and managed the *Skills framework for the information age* (SFIA). This is referred to as "the global skills and competency framework for the digital age" (SFIA Foundation, 2021a), encompassing the skillsets required by information professionals involved in the design, development, implementation, management and protection of digital technologies and data. One skills profile covers information management (IM) roles, i.e. people responsible for planning, implementing and controlling the full life cycle management of digitally organised information and records. The Australian Government's Digital Transformation Agency (DTA) has subscribed to a country-wide licence to make the SFIA resources available to all Australian organisations.

The SFIA framework feeds into the Australian Public Service (APS) *Digital career pathways resource* (DTA, n.d.-a), with the skills mapped to the *APS Job families* framework. The APS job family for Information and Knowledge Management includes the job functions of Librarian, as well as Information Governance and Knowledge. The scope of Information Governance and Knowledge covers three areas of practice: Curator/Archivist/Conservator; Data/Information Management Officer; Records Management Officer or Manager (DTA, n.d.-b).

In the documentation, the APS datasets are correlated with the Australian and New Zealand Standard Classification of Occupations (ANZSCO) datasets that represent the roles of Librarian, Archivist, Information and Organisation Professionals,

and Records Manager (APSC, 2021b). Although the information is primarily of relevance for workforce planning activities within the government, the linkages to the ANZSCO categories allow for a comparative analysis to be made between the public service staff and those employed in the wider business and academic sectors.

National Archives of Australia serves as the standards body, managing business information standards such as the *Information standard for Australian Government, the Australian Government recordkeeping metadata standard and the Australian Government Legal Service metadata standard* (NAA, n.d.-b). NAA is a strong advocate for the effective management of information and for the development of the relevant skills and capabilities in the workforce. A general capability framework for all staff has been developed: this includes a basic understanding of areas such as information and data management, legislation and policy, data literacy, business process analysis and user experience (NAA, n.d.-c). There is also a more specialised framework for IM specialists, *Capabilities for information management professionals* (NAA, n.d.-d), as well as a further grouping of capabilities which relates to "additional data-centric skills and knowledge for information management professionals" (NAA, n.d.-d).

In the Australasian region, the interests of professionals working in the field of information and records management are advanced by Records and Information Management Professionals Australasia (RIMPA). As already noted, information and records management courses in Australia are jointly accredited by ALIA, ASA and RIMPA. Beyond this, however, academic curricula

are also evaluated against the criteria listed in the association's *Statement of knowledge for recordkeeping professionals* (RIMPA, 2019), plus the relevant international and national standards for records management.

The *Competency framework* developed by Archives and Records Association for the UK and Ireland (ARA, 2017) has been mentioned in the context of competency frameworks for archivists. In the *Competency framework* it is stated that the document should be "the first place record keepers should refer to when thinking about their own career and professional development" (ARA, 2017).

There are two professional bodies in the US whose members are drawn from the information management and records fields: ARMA International and the Association for Intelligent Information Management (AIIM). ARMA International was originally known as the Association for Records Managers and Administrators, but as the field of records management grew and expanded to encompass information governance, the organisation adopted the new name of ARMA International.

One of ARMA's key publications is the *Records and information management core competencies* (ARMA International, 2017). The resource is described as a competency model which includes the knowledge, skills and characteristics required for high quality professional practice. There are six competency domains:

- Business functions
- Records & information management (RIM) and information governance (IG) practices
- Risk management
- Communications and marketing
- Information technology
- Leadership.

The competency model presents highly detailed information about the anticipated tasks that information professionals may perform.

In summary, the employment landscape in the library, information, knowledge and data sectors is broad, deep and complex. CILIP argues that the skillsets of information professionals are constantly evolving "in response to the changing needs of information users, changing formats and the changing contexts in which information, knowledge and data are used" (CILIP, 2018b). The research into the different skills frameworks highlighted the complex interplay between 'hard' skills, or technical competencies, and 'soft' skills, or personal and interpersonal qualities. While attributes such as critical thinking and creative problem solving, flexibility and adaptability, relationship building and communication were already viewed as valuable in contemporary professional practice, there was evidence that they would increase in importance in the digital information environment. The diversity and adaptability of the library and information professional skillsets are viewed as a positive factor which can contribute the realisation of ALIA's vision for "a strong, diverse and future-ready workforce with contemporary skills that ensures the quality of library and information services" (ALIA, 2020d).

4. Skills for future professional practice

The notion of 'future skills' is multifaceted and multilayered, and inevitably will depend on the immediate area of employment and career stage. While extensive scoping work to consider key trends for skills and competencies has been undertaken by agencies such as IFLA (2019a), EDUCAUSE (Alexander et al., 2019; Pelletier et al., 2021), RLUK (2012; 2021a) and ARL (Calvert, 2020), other approaches include the development of potential scenarios (Roy & Kennedy Hallmark, 2017) or conducting interviews and focus groups where participants are invited to consider the skillsets that they may need to support and achieve long-range organisational goals (Campion et al., 2011; SLV, 2014b; SLV, 2020).

For the *Technical Report*, nine future-focused skillsets were selected for review: there was a sense that these were not necessarily 'new' skillsets, but some long-practiced skills required "a 'change of focus' in the digital environment" (Howard, 2015). As the information landscape continues to be shaped by social and technological developments, further skillsets, or adaptations of knowledge and skills, will undoubtedly come into prominence.

The rapidly changing digital information environment is a key driver for most of the evolving areas of professional practice.

- Digital dexterity
- Digital curation
- Data librarianship
- Open scholarship
- Digital humanities librarianship
- Information governance
- Artificial intelligence and machine learning
- Media literacy

In addition to these fields, the growing awareness of and engagement with the significance of cultural competence is discussed. Cultural competence refers to the ability of professionals to understand the needs of diverse populations: "the ability to understand and respect cultural differences and to address issues of disparity among diverse populations competently" (Overall, 2009). The issues relating to Indigenous cultural competency are of particular significance in regions with longstanding communities, histories and cultures of First Peoples, including, but not limited to Canada, New Zealand and Australia.

Significantly, there is a growing interest in the specific issues associated with the role of library and information professionals in the contexts of Indigenous knowledge and their engagement with First People's cultures. In this country, there is a heightened awareness of the complexities and tensions that sit at the intersection of Indigenous and western knowledge management processes in libraries (Thorpe, 2021a) and the critical importance of culturally appropriate management of content and collections, respectful programs and services, and inclusive career opportunities for Aboriginal and Torres Strait Islanders is emphasised. An overview of the strategies developed by the Australian library and information community is complemented by the significant work undertaken in New Zealand and Canada.

Importantly, each of the areas of knowledge and skills for future professional practice considered the essential, profession-defining core values and ethical principles. This led to the question as to whether the library and information profession might be shaped more by values and ethics than by technical skills.

5. Professional values and ethics

As one of the strategic goals for the Professional Pathways project is to attract people from different backgrounds into the profession, based on the premise that there should be a shared ethos and common values, the discussion in the *Technical Report* explored the documented scope of our professional values and ethics, and how these might contribute to our professional identity (Chapter 5). While professional identity is associated with an individual's professional self-concept based on attributes, beliefs, values, motives and experiences (Billot, 2010), there is also a collective dimension where values are common to the professional community as a whole (Gibson et al., 2010). Given the ways in which the range of knowledge and skills required by staff working in library and information services is broadening and deepening, the topic of professional values and ethics was found to be relevant to the study.

In his exploration of 'our enduring values', Michael Gorman (2015) identified the belief in the greater good as a key principle that underpinned the profession's core values. The greater good is viewed as the antithesis of individualism, materialism and selfishness which Gorman argues are prevalent in today's society. The International Federation of Library Associations and Institutions (IFLA) embraces four central professional value principles: freedom of access to information and freedom of expression; universal and equitable access to information; the belief in the value of libraries in guaranteeing that access; and the commitment to diversity, equality and inclusion (IFLA, 2019c).

ALIA's ten core values (ALIA, 2018a) reflect these principles, but they are more action-oriented: promotion of the free flow of information; delivery of authentic information; connection of people to ideas and learning; dedication to literacy and digital literacy; respect for diversity, individuality and equality of all; adherence to information privacy principles; preservation of the human record; service excellence; commitment to professional growth and development, and creating partnerships and collaborations to advance these values. This action-oriented approach underscores the importance of integrating core values into our personal and professional lives.

It is emphasised that values should not be regarded as irrefutable absolutes. In the discussion about the skills for future professional practice, it was observed that every generation should reflect on their professional values (Preer, 2008) and change, adapt or reinterpret them as society changes and evolves. Ethical problems may occur in any situation involving the generation, organisation, storage, distribution or consumption of information (Valletton Presig et al., 2014), and digital technologies have undoubtedly escalated the potential for ethical dilemmas.

Putting our values into practice influences our understanding of 'acceptable professional behaviour' and 'trustworthiness'. It was argued that the library and information professionals were trustworthy because their work is founded on the strong ethos, ethics and values of librarianship (Poole, 2019). The IFLA code of ethics (IFLA, 2012a), endorsed by ALIA (2018d), sets out the principle that librarianship, in its very essence, is an ethical activity embodying a value-rich approach to professional work with information. The notion of values and ethics are closely intertwined because a code of ethics should reflect a profession's shared values (Koehler, 2006): values determine what is important, while ethics determine what is right (Surbhi, 2017).

While the comparison of the codes of ethics of different professional bodies highlighted some common principles, a wide range of ethical issues were examined in the professional literature, including copyright, internet filtering, access to and preservation of digital information resources, public library fees and charges, data protection, and privacy and confidentiality. The ALA (2019d) stressed that a code of ethics should be structured as a framework of broad statements that can guide ethical decision making, but it cannot be prescriptive in terms of covering every information interaction. In the skills frameworks examined in Chapter 2 and Chapter 3 of the *Technical Report*, ethical behaviour is generally included as a core competency for library and information professionals. CILIP has drawn the association's ethical principles, professional conduct and core values into a single resource, the *CILIP ethical framework* (CILIP, 2018a) which sits at the heart of the *PKSB* (CILIP, 2021a). CILIP firmly believes that ethics and values are central to all aspects of professional practice.

6. Qualification pathways

The current pathways into the library and information profession here in Australia are explained in Chapter 6 of the *Technical Report*: the vocational pathways encompass apprenticeships and traineeships, Certificate III and Certificate IV, and the ALIA-accredited Diploma of Library and Information Services. The higher education pathways include ALIA-accredited courses at the levels of Bachelor, Graduate Diploma and Master's levels. Beyond these qualifications, further career opportunities are offered by higher degrees by research: Master's and PhD. The pathways available to teacher librarians and to information professionals working in archives and records management are also outlined. The relationship between educational qualifications and ALIA's membership categories is clarified, with an overview of the requirements for widened eligibility for applicants with international qualifications.

An international perspective is provided with the review of the qualification pathways managed by LIANZA in New Zealand, CILIP in the UK and ALA in the US and Canada. LIANZA offers three routes to Professional Recognition (LIANZA, 2021d), candidates applying via either Route A: a recognised NZ library and information qualification, Route B: a recognised overseas qualification, or Route C: other circumstances. Route C includes a pathway for individuals with an undergraduate degree in any discipline plus three or more years' professional experience. Relevant professional expertise is mapped to LIANZA's *Bodies of Knowledge* (BOKs).

For professionally qualified individuals in the UK, there are three levels of professional status: Certification, Chartership and Fellowship (CILIP, 2021e). The Professional Registration process requires members to map their skills and experience to the *PKSB* and to submit a portfolio for assessment, which should cover personal performance, organisational context and knowledge of the wider professional context. Since 2019 there has also been a professional registration pathway for knowledge managers (CILIP, 2021j; CILIP, 2021k). A new pathway has been introduced recently with the vocational Library, Information and Archives Services Assistant Apprenticeship program, which has received wide industry and employer support in England (CILIP, 2020e).

In the US and Canada, the ALA accredits library school programs, but does not offer any individual programs for individual professional registration. Some US states have regulatory certification schemes for the staff working in public libraries, e.g. New York State Public Library Certification (NYSL, 2021).

The pathways for entry into four other professions are presented: accounting, data management, law and architecture. While three of these are regulated and require licences, certificates or registration to practice, there are still flexible career-focused opportunities for entry into the field. 'Less standardised' pathways, which may involve shorter form credentials, are being introduced which tend to appeal to more mature students who are often changing careers. This cohort brings "a wide range of prior education, work and life experiences to the professions, and offer fresh outlooks" (Chellew et al., 2012). In a recent review of the Australian Qualifications Framework (AQF), the value of shorter form credentials was highlighted as a strategy to address the increasing demand for upskilling and re-skilling of workers in a rapidly changing working environment driven by technological developments (Noonan et al., 2019).

7. Future views of professional learning

The emerging trends in professional qualification pathways are examined in Chapter 7 of the *Technical Report*. Attention is paid to the opportunities and challenges associated with micro-credentialling. The concept of micro-credentials is not a new one, with the long history of 'extension courses' enabling further education, community engagement and lifelong learning (Oliver, 2019), massive open online courses (MOOCs) appearing on the education stage a decade ago, and many short courses being offered as professional development activities by many professional bodies (Selvaratnam & Sankey, 2021). Today, as the world of work rapidly evolves, increased demand for the development of new skills means that lifelong learning has become an imperative (PWC & ATN, 2018).

The views of the different stakeholder groups, including educators and training providers, and employers in industry and the professions are reviewed. The growing trend for education institutions to offer micro-credentials has highlighted the tensions that exist between, on the one hand, the belief that they seek to erode the public good of higher education (Ralston, 2021) and on the other hand, the conviction that they are an essential response to the realities of the contemporary world where digital technologies, especially artificial intelligence, are disrupting the nature of work as we know it. In studies on the future of work, it has been argued that students regard traditional academic pathways as being too linear, too rigid and far too costly (Boud & Jorre de St Jorre, 2021; PWC, 2017). They are now actively seeking far more nimble and flexible learning models that are more closely aligned with employer needs.

The AQF review recognised the emerging interest in 'non-standard' learning options such as informal learning, in-service learning and micro-credentials, but acknowledged that there were as yet no formal ways to ensure national or international consistency in mapping them to AQF levels (Noonan et al., 2019). There was also strong evidence that there was development of policy in Australian universities and colleges was unevenly distributed (Selvaratnam & Sankey, 2019; 2020). However, MOOCs are becoming far more widespread in many different learning contexts, and the COVID-19 pandemic has undoubtedly resulted in a surge of interest and engagement (Shah, 2020). Although this growth is clearly learner-driven, as more and more people seek out alternative learning solutions to develop new skills, educational stakeholders are moving quickly to respond to the demand (Brown et al, 2021).

Employers are also exploring new options for recruitment. Some new strategies have been introduced to facilitate entry into the workforce, giving people a foot in the door based on non-traditional educational achievements and the demonstration of soft skills such as grit, tenacity and perseverance (Brown et al., 2019; The Glassdoor Team, 2021). There are also situations where professional or vendor qualifications certify that a staff member has successfully completed a program of required training, generally for internal purposes, but with wider industry recognition. Examples include Microsoft Certified Professional credentials (Microsoft, 2021), Coursera Professional Certificates (Coursera, 2021) and Google Career Certificates (Google, 2021). Although these certifications are not currently quality-assured under any government-approved standards, they do arguably meet defined industry needs.

Another approach represents an inversion of the educational journey: people complete a micro-credential, which leads them directly to employment, and then they subsequently enrol in a macro-credential at university (MicroHE Consortium, 2019; NZQA, n.d.-a). Some organisations have partnered with higher education institutions to develop, endorse or accredit their own industry-specific, skill-based micro-credentials. As one of the recognised benefits of these micro-credentials is the potential to focus on rapid learning for employability, while the endorsement of the micro-credential by employers or professional bodies clearly underscores the alignment between learning and employability (Oliver, 2019). It has been found that learners are often attracted to the guaranteed pathways from micro-credentials into work experience and paid employment, while employers have expressed satisfaction with the ways that these micro-credentials draw a strong pool of talent to their door.

Stackable micro-credentials have been identified as a valuable way to demonstrate career development to managers and to future employers, and the potential role of the professional association to encourage lifelong learning and to support members on their career journey has been acknowledged (Hall-Ellis, 2016). In the UK, CILIP has already introduced a program of short course accreditation to provide a guarantee of quality for modular courses, one-day courses and online courses within the library, information and knowledge field (CILIP, n.d.-j).

8. Continuing professional development

"Lifelong learning allows for Australians to keep pace with the changes and capabilities required for the future of work" (PWC & ATN, 2018). The pace of change in the workplace, driven by technological developments, along with the growing number of older workers (AlphBeta, 2019), means that career-long learning must become a practical reality (Noonan et al., 2019). The value of continuing professional development is woven through the *Technical Report*: it is included as a dimension in many of the different skills frameworks, it is central to our understanding of the skills required for future professional practice, it is embedded in our professional values, it is a central factor for personal and professional growth, and it is an essential attribute for a strong future-focused workforce. In Chapter 8 of the *Technical Report*, the pivotal role played by professional associations to encourage and support career-long learning, as well as to formally recognise CPD to retain professional status, is examined. The similarities and differences between the approaches adopted in Australia, New Zealand, the UK and the US are considered.

In Australia, the ALIA CPD scheme is presented as a model of tracking personal and professional development over a three-year period. The scheme is linked to the professional status as Certified Professional (CP) or Distinguished Certified Professional (DCP). New members of ALIA are automatically enrolled in the CPD scheme, but it remains voluntary to actively participate. ALIA has developed ten specialisations for the CPD scheme which enable members to align their CPD activities and achievements to their particular area of professional practice (ALIA, 2021m). ALIA also has a Proficiency Recognition Program (PRP) which has been designed to encourage General or Student members who are embarking on a career in the library and information sector to learn more about the profession they have joined (ALIA, 2021p).

In New Zealand, LIANZA's CPD scheme is linked to Professional Registration. Revalidation of professional status is required every three years, with the member's development activities mapped to the *BOKs*. In the UK, on the other hand, the revalidation process for CILIP members who hold Professional Registration is an annual commitment. The rationale for revalidation is to encourage members to attain professional recognition to keep their skills up-to-date and stay abreast with the latest developments in their field (CILIP, 2021m).

In the AQF review, it was emphasised that new career pathways will no longer be linear and hierarchical (Noonan et al., 2019). The in-depth research conducted for the literature review and environmental scan has confirmed the growing interest in more flexible, personalised forms of credentials which leverage the opportunities of work-based learning. In one study into the future relevance of professional associations, it was reported that "it is the role of the professional association to develop the new skills required as part of its lifelong learning professional development, helping members to adapt and change over the course of their careers" (Dale, 2016). This view bodes well for the actualisation of ALIA's vision for a strong, diverse and future-ready workforce. Nevertheless, it requires confidence to move away from a one-size-fits-all approach: the adoption of a fresh mindset and the conceptualisation of a new framework to support alternative professional pathways to professional status, will require meaningful collaboration between industry practitioners, employers, educators and training providers, and the professional association.

9. Conclusions and key findings

The *Technical Report*, prepared as part of the *Professional Pathways* project, explores a range of themes which are central to ALIA's vision for "a strong, diverse and future-ready workforce with contemporary skills that ensures the quality of library and information services across Australia" (ALIA, 2020d). One of the principal objectives for the project is to develop strategies to "attract clever people from a wide range of backgrounds to the industry, who share the ethos and values of the profession, in order to be inclusive and relevant" (ALIA, 2020d).

An extensive range of contemporary LIS skills frameworks, developed and disseminated by professional associations and employer groups in Australia, New Zealand, the UK and the US, are examined in the *Technical Report*. Some frameworks cover the core knowledge and skills required for professional practice across the breadth of the library and information sector, while others endeavour to express the deeper perspectives of the skillsets needed in specialised areas of practice. The majority of frameworks include a combination of professional knowledge, technical competencies and behavioural skills. The analysis of these diverse frameworks provides clear evidence that the library and information profession is a far from a homogenous one: collectively the frameworks capture the subtle differentiation between the public, academic and research, special, health and school library and information services, as well as the allied fields of archives and records and information management.

The interest in developing an understanding of the future-ready workforce directs the discussion to a review of some of the skills for future practice. The information landscape is constantly evolving and the skill requirements for the library and information profession are continually shaped by social, demographic, economic and technological developments. While the demand for new skillsets will depend on the immediate work context, it is noted that new areas of professional practice will always prompt fresh ethical questions. It is crucial for library and information professionals to understand the true nature of "the shared ethos and values of our profession" (ALIA, 2020d).

The values and ethics of a profession represent an intrinsic element of professional identity, both individually and collectively. The three principal factors that contribute to professional identity were found to be self-labelling as a professional, the integration of skills and attitudes as a professional, and the perception of context in a professional community (Gibson et al., 2010). In the library and information sector, the expanding context of the professional community is acknowledged: the introduction of new roles that are required to support an increasing spectrum of services and programs has led to the employment of people from other disciplines beyond library and information science. Today, people with a far more diverse range of professional skillsets contribute to the delivery of "quality library and information services that anticipate and meet the needs of the population" (ALIA, 2021s). The research has revealed that, as these individuals became immersed in the professional community's culture through their exposure to the values, skills and customs (Fraser-Arnott, 2016), they were eager to be recognised as 'library professionals'.

If the culture of a professional community is sustained by its core values, the strength of a diverse profession will depend on a deep and united understanding of the factors that distinguish that specific professional environment from other professional environments.

The literature review confirmed that the significant characteristics of the LIS profession are embodied in common core values and a shared ethos. Across the world library and information professionals are committed to service, equality of users, access to information, intellectual freedom, literacy, information literacy, and preservation of the cultural memory. These are underpinned by the library and information professionals' belief in the greater good of society and the desire to demonstrate integrity and trustworthiness in their professional practice.

It was found that many professions have begun to move away from the traditional pathway of an undergraduate degree plus professional experience, with increasing attention paid to bridging courses, short courses and CPD activities to provide learners with more flexible and adaptable avenues to professional qualifications. In future, learning pathways will cease to be linear and hierarchical as workers will need to develop new skills in different areas and at different levels (Noonan et al., 2019). It was noted that the trajectory of professional learning was moving rapidly: many business leaders, educators and trainers, and government agencies are exploring the opportunities and challenges associated with shorter form credentials.

The patchwork landscape associated with micro-credentials, MOOCs, foundation courses and training modules was reviewed, on the one hand from the perspective of the education provider, and on the other hand from the perspective of industry and the professions. Given the anticipated fragmentation of education and employment markets, the research revealed that there was scope for professional associations to engage with members by encouraging, facilitating and recognising their career-long learning journey.

There are very strong arguments for continuing professional development across all areas of the library and information sector. However, the lack of a coherent approach to managing a CPD program was evident in the different schemes offered by ALIA, LIANZA and CILIP. Across the different professions, in response to the rapidly changing world in which we live, the requirement to revalidate professional competence has become far more prevalent. Some revalidation schemes are quite prescriptive, while others offer the learner considerable autonomy. One trend reveals the increasing opportunity to reflect on work-based learning as part of the professional revalidation purposes. The adoption of a critically reflective approach to real-world learning represents a powerful strategy for individuals to look in detail at their personal and professional practices and to understand how they are integrating new knowledge with existing knowledge. This may in turn encourage them to look for ways to update their skill and knowledge base and to be actively involved in their own learning and development to improve their practice.

The concept of 'active professionalism' refers to professionals as being fully committed to professional learning, to widening their knowledge and mastering new skills (Szplit, 2020). Active professionals consciously evaluate their own capabilities, they look for opportunities to improve their practice and they are motivated to accept challenging tasks. Importantly, active professionals look beyond their professional silos to find productive ways to work with others. This results in a high level of autonomy, resourcefulness and ethical responsibility in the search for professional excellence (Spratt, 2015). The library and information sector has been described as a rich environment for active professionals who want to be challenged to explore new ideas and to seek out the relevant learning opportunities that will help them achieve their personal and career goals (Stephens et al., 2021).

The *Technical Report* affirms that ALIA is not alone in seeking to address the challenges of the changing nature of work with the resultant shifts in professional education, training and employment. Given the challenges and opportunities of the evolving work environment, ALIA's investment in the *Professional Pathways* project may be considered a timely initiative. The mindset of life-long active professionalism, underpinned by core ethics and values, and the thirst for whole-of-career development, are crucial if libraries and information services are to grow and develop in line with the ongoing advances in society and technology.

With support from key stakeholders, the *Professional Pathways* project is well positioned to build a sustainable future for the library and information workforce in Australia. In addition to the conclusions in the body of the report, we have distilled the following key findings from this report to inform the next stages of the project:

1. Alongside core professional knowledge, values and ethics sit at the centre of professional practice and professional identity; these differentiate the library and information profession from other sectors.

2. When reviewed in light of national and international skills and competency frameworks, ALIA's *Foundation knowledge for entry-level library and information professionals* (2020e) is current and relevant, and provides a solid base for further developmental work.

3. There is currently no comprehensive Australian framework of knowledge, skills and ethical behaviour that represents a sector-wide, whole-of-career resource, capable of supporting the learning and development needs of all library and information professionals.

4. The current ALIA-accredited higher education and vocational education qualifications provide important pathways into the profession. Strong industry engagement and support is important to ensure that courses continue to respond to the needs of the sector.

5. There are many diverse areas of specialised practice, within and across library and information sectors, that are critical to the functioning of the sector. It is acknowledged that the different specialisations require a range of approaches to support the development of the knowledge and skills needed for professional practice.

6. There are opportunities for ALIA to work with library and information educators, employers and key stakeholders to develop new pathways into the profession at different levels. Pathways should encompass the core principles of professional identity, professional values and professional ethics, and an understanding of the wider library and information environment. Successful professional transition programs and/ or credentialled pathways may provide useful models.

7. In a rapidly changing world, the imperative for continuing professional development (CPD) is widely acknowledged. Professional associations are in a strong position to encourage and support career-long learning and to formally recognise CPD as an essential component for attaining and revalidating professional status. The current ALIA CPD Scheme could be reviewed and strengthened, with consideration given to the concept of revalidation of professional status.

8. There is scope for further work to encourage active professionalism as an individual and collective attribute that is integral to all areas of practice and all interactions with others. The cultivation of active professionalism will support a whole-of-career perspective of employment in the library and information sector.

9. The challenges and opportunities that ALIA is seeking to address through this project are neither unique to one library and information sector nor to Australia. To respond to the dynamic environment and to address the challenges, a whole-of-sector approach is required. The cross-cutting and global nature of the issues provides opportunities to consult with international professional bodies to achieve common objectives.

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