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# Foreword

The rapidly changing information landscape is influenced by technological advancements, innovations and global trends. Data, information and knowledge are key to transformation, social development and economic advancement. Effective data, information and knowledge management are critical in this new world, requiring a rejuvenation of the Library and Information Science (LIS) profession and a metamorphosis of the older generation of librarians to collaborate with the new generation and to effect the cross fertilisation of tacit knowledge, competencies and proficiencies for dynamic knowledge-driven environments. Vigorous education strategies, learning styles and spaces as well as research are essential for contemporary LIS professionals. As a result, the Library and Information Studies Centre (LISC) at the University of Cape Town (UCT), at its 75 years Commemoration Conference in November 2014 strategically engaged in a discourse on *LIS education and research in the changing information landscape.*

This discourse was conceptualised to take cognisance of the complexity of the South African higher education agenda; its demand for transformation; the need for African LIS professionals to be adaptable to change in order to remain relevant; the value of research in knowledge generation and innovation; and the dynamic information landscape within which LIS professionals operate. The discourse was led by respected scholars who were carefully selected to elucidate significant trends in the critical areas of Higher Education; Change and Dynamics; Research Imperatives; and the Information Landscape. These were the four broad themes that framed the proceedings with which LISC intended to advance the LIS discipline on the African continent.

In his opening message to the conference delegates, the Dean of the Faculty of Humanities, UCT Professor Sakhela Buhlungu, noted that the conference was intended to expose LISC to integrated LIS education and research approaches to assist in programme design and innovative curriculum delivery relevant to the dynamic digital landscape. This suggestion from the Dean has already borne fruit, as the presentations by Associate Professor Jaya Raju and Ms Ujala Satgoor led LISC to develop a new master's degree by coursework (MPhil with specialisation in digital curation), and to design a new module: Teaching and Learning for LIS Professionals.

Furthermore, the Dean recommended that the Proceedings should be circulated as widely as possible so that the significant trends identified and discussed at the conference could be disseminated to the wider South African LIS community and the rest of Africa. Bearing in mind this message, and acknowledging both the generosity of the scholars who led the discourse, and our commitment to the philosophy underpinning the Open Access movement, it is a great pleasure to present this volume of our conference proceedings as a peer reviewed open access monograph.

LISC also wished to celebrate its 75th year in commemorating the successes and challenges it encountered over the years. It was established in 1939 as the School of Librarianship and changed its name twice more. While the conference theme and discourse was directed at

the future, it was nevertheless important to look back at its origins and development over its 75 years of existence. This historical overview is presented by its veterans: Emeritus Professor Peter Underwood and Emeritus Associate Professors Mary Nassimbeni and Karin de Jager. These scholars are well known locally and internationally for their research and teaching, professional services, and community development. They have served the department for many years, are still highly committed to its activities, and each at some point had an opportunity to be its head. LISC, UCT at large and alumni of the department value the contribution of these scholars.

Since scholarly communication is a fundamental pillar of education and research in any discipline, it is not surprising that a keynote address on scholarly communication introduced this discourse on LIS education and research in a dynamic information landscape. The proliferation of the Web and its evolution has impacted on the access and discoverability of scholarly communication. The transition from traditional paper-based texts to digital multimedia formats effected fundamental changes in scholarly communication systems. In his paper, *Towards a web-native scholarly communication system*, Professor Herbert Van de Sompel, the conference keynote speaker, disclosed how current web-based scholarly communication essentially still reflects paper-based systems. His contention was that "the current system was not reinvented from scratch; but simply copied into the web". This renowned scholar addressed the transitionary path from paper-based scholarly communication to a web-native digital environment and he shared his first-hand experiences of this transition. We are very grateful to Ms Jenny Walker who extracted the article in this volume from a recording of his presentation, and to Emeritus Professor Peter Underwood for subsequently editing the paper.

Continuing with the debate on scholarly communication, Professor Tom Cochrane in his paper *The Open Access Advantage for Researchers – Reflections on Experience and Challenges*, focused on the importance of research being open to the widest possible audience, especially to researchers in the developing world. He addressed critical questions such as the link between Open Access and reward systems for researchers (author recognition), and how researchers might improve their visibility and impact.

Increasingly, research and knowledge production in society, particularly in the scientific domain, and supported by the Open Data initiative, requires libraries to contribute to literacies in data, information and knowledge as part of their mission to further knowledge and innovation (Baškarada and Koronios, 2013). The open data initiative also requires knowledge and competencies in research data management (RDM). Ms Joy Davidson revealed diverse opportunities available for librarians to become active players in supporting RDM and curation as part of the open science movement. She reminded us all that librarians have consistently demonstrated flexibility and willingness to embrace change; an attitude which has been a crucial factor in the early successes of RDM in the United Kingdom.

The hierarchy of data, information and knowledge is the foundation of our discipline, requiring regular reflection on the changing information landscape, not only in our

discipline but also in education generally. Professor Carol Tenopir teased out a conceptualisation of the phenomena of data, information and knowledge as research imperatives, showing the relationship among them as strategic in scholarly communication.

Leading the discourse on the sub-theme of higher education, Professor Crain Soudien described the South African higher education sector and the multiple challenges and pressures emanating from government and society at large. Looking into how this sector functions in the midst of these challenges, for example the need to produce relevant graduates with patriotic values and the ability to contribute to the economy, Soudien illustrated emerging trends impacting both negatively and positively on the sector and suggested a new role for academic libraries in South Africa.

Higher education cannot be discussed in isolation from curriculum content and its delivery. Associate Professor Jaya Raju critically reflected on the new knowledge and skills sets required to function effectively in a dynamic information landscape, and how LIS education in South Africa was responding to the dynamics of the digital age.

The social nature of information promotes connections, collaborations and networks among people, communities and society at large. Knowledge is increasingly enhanced and linked in a range of ways and the ability to access, use, and interact with knowledge has become dynamic, so that LIS education and research in these contemporary times require participants not only to change but also to embrace change. Realising that change is inevitable and unavoidable in the digital age, and that aptitude for change might not be feasible without a deeper understanding of what it implies in the context of South African higher education, what it requires and how and why it must happen, Dr Steyn Heckroodt was invited to lead the discourse on change.

Building on his discussion, Ms Ujala Satgoor elucidated the LIS practitioner's perspective by emphasising that "it can no longer be business as usual", but that the LIS profession and academic libraries servicing LIS education and research in the changing information landscape have to rejuvenate themselves and drive the change and innovation processes. The profession has to learn and grow through constant and continuing professional development.

*Constance Bitso, PhD and Reggie Raju, PhD*

## Reference:

Baškarad, S. and Koronios, A. 2013. Data, information, knowledge, wisdom (DIKW): a semiotic theoretical and empirical exploration of the hierarchy and its quality dimension. *Australasian Journal of Information Systems,* 18(1):5-24.

# Acknowledgements

# Peer review statement

All chapters in this monograph have been peer-reviewed. The reviewers were Emeritus Professors who have a National Research Foundation (NRF) Rating. The review process was as follows:

- The papers were submitted to reviewers;
- The editors requested authors to correct the manuscripts as per the suggestion of the reviewers;
- The authors, in table format, indicated to the editors how they addressed each of the comments of the reviewers; and
- If the editors were satisfied that the revised manuscript addressed the issues raised by the reviewers, the manuscript was submitted for publication.

The revised papers were then language edited by a third party.

# Abstracts

## Patriotism, Relevance and the Capacity to Think: Whereto for the South African University in the Information Age?

**Crain Soudien,** CEO, Human Science Research Council and former Deputy Vice-Chancellor, University of Cape Town

*This paper reflects on the challenges of the South African university in developing an agenda for itself in a time and space defined by multiple calls on what it should be doing. The context against which the paper unfolds is the following:*

*(i) the persistent pressure from the government for the university to align itself, its research, teaching and social responsiveness, with government's priorities. In this agenda the notion of the patriotic university is central;*

*(ii) the argument that the university should be producing graduates who will supply the economy of the country with the skills it requires. This agenda is essentially that of the relevant university as might be seen from a human capital perspective; and*

*(iii) the view that the university should prepare young people for citizenship. This agenda builds on the classical argument that the purpose of the university is to prepare young people to think critically.*

*How, in a climate in which the availability of information is increasing every day, the university is able to constitute an agenda for itself is a deeply important question. I look at how the sector is working with these pressures, and highlight emergent innovations which portend where the university could be going.*

## Curriculum Content and Delivery: South African LIS Education Responses to a Changing Information Landscape

**Jaya Raju,** Library and Information Studies Centre, University of Cape Town

*Rapidly evolving information and communication technologies have dramatically altered all aspects of library and information services and, significantly, have led to a revolution in scholarly communication. This in turn has impacted on the knowledge and skills requirements of professionals practicing in the information environment. Hence the need for Library and/or Information Science (LIS) education to reflect the new knowledge and skills sets required to effectively mediate a dynamic information landscape. This paper, taking a mixed-method research approach, uses qualitative and quantitative data gleaned from relevant literature, a survey of LIS school heads in South Africa coupled with an appraisal of the websites of these schools, and content analysis of recent relevant job advertisements, to address the following critical question: How has LIS education in South Africa responded to the dynamic information landscape? Using relevant pedagogy theory to frame the research, this inquiry focuses on LIS school curriculum content and delivery responses to a fast evolving information environment. The outcome of this inquiry provides an overview of the current status of LIS education in South Africa in an information age impacted on by rapid technology developments.*

## The Open Access Advantage for Researchers – Reflections on Experience and Challenges

**Tom Cochrane,** Queensland University of Technology

*This paper focuses on the advantages of Open Access, (OA) particularly from the point of view of individual researchers, research centres and disciplines, and institutions. The advantage described by the phrase "OA advantage", is multifaceted. The experience of Queensland University of Technology in Australia in pioneering OA as preferred practice in an institution with a growing research profile and energy, has seen evidence of the OA advantage develop in the experience of our researchers. The University has witnessed the development of*

*practical evidence about improved recognition and impact, and this has occurred in the context of sector wide activity and policy where fresh approaches and leadership will result in even greater rewards for researchers whose outputs are "in the open".*

## It's not Business as Usual! CPD as a Change Imperative for LIS Professionals

**Ujala Satgoor,** Immediate Past President, Library and Information Association of South Africa (LIASA)

*The impact of modern and emerging technologies on work environments and user behaviours is placing new demands on library and information services (LIS) professionals; they are being challenged to redefine their roles within this context. The need for increased versatility to function within these environments requires a redefinition of competencies and skills sets. Continuing professional development (CPD) is widely accepted as the means by which LIS professionals adapt to new imperatives and remain relevant within changing environments. This paper aims to address the new contexts for LIS practices, some of the new required skills for LIS professionals and the importance of the inclusion of CPD as an institutional strategic imperative.*

## The Importance of Data, Information and Knowledge in Scholarly Communication

**Carol Tenopir,** University of Tennessee, School of Information Sciences

*For decades, Information Scientists have explored how scientists and other researchers communicate in their work. Formal communication channels most commonly include conference papers, articles, and books. Research data has not been treated as a separate entity in these studies until fairly recently, however. With current initiatives for open data, research data as a research product unto itself is being explored, yet many barriers to this type of thinking still exist. What barriers exist to open data sharing among scientists and other researchers? Can data resources stand on their own or must data be integrated with information resources to form knowledge in scholarly communication? What happens when formal information channels are broken down into smaller parts for access and retrieval? What are the relative roles of data, graphics, articles, and other forms of formal communication in scholarship? This paper explores how knowledge of the use and conceptualisation of formal communication channels informs library and information science research and practice.*

## Fostering Open Science Practice through Recognising and Rewarding Research Data Management and Curation Skills

**Joy Davidson,** Digital Curation Centre, UK

*In a bid to improve research integrity, drive innovation, increase knowledge and to maximize public investment, researchers are increasingly under pressure to work in a more open and transparent way. This movement has been referred to as open science. Open science offers a range of potential and measurable benefits – for researchers and the institutions that employ them as well as for society more generally. However, to realise these benefits, we must work towards changing current research practices and behaviours. Researchers will need to acquire new research data management and curation skills that enable them to undertake a broader range of tasks along the entire research lifecycle – from undertaking new means of collaboration, to implementing data management and sharing strategies, to understanding how to amplify and monitor research outputs and to assess their value and impact. In parallel, information professionals who work to support researchers and the open science process will also need to expand their research data management and curation skillsets. It will be equally important that current recognition and reward systems are amended to reflect the application of such skillsets within a range of disciplines. This paper will explore the potential role that librarians can play in supporting and progressing open science and discuss some of the new skills that librarians may require if they are to fulfil this role effectively. Citing examples from the current UK*

*research landscape, this paper will map these skills to the Wellcome Trust and Digital Science's CRediT Taxonomy which was developed in 2013 to enable the broad range of contributions involved in producing research outputs to be more consistently described and rewarded.*

## Scholarly Communication: a System in Transition

**Herbert Van de Sompel,** Los Alamos National Laboratory
**Jenny Walker,** Independent Consultant

*The scholarly communication system is in transition from a paper-based system of journals and similar sources to one that is rapidly becoming web-based. The changes present technical challenges regarding interoperability between systems and services and long-term preservation, but they also yield broader challenges related to stewardship, access, the account of the scholarly record, and the very notion of the version of a record. This paper considers these ongoing changes and explores some of the possible consequences for networked, digital, research communication. The paper is a keynote presentation delivered by Prof. Herbert Van de Sompel of Los Alamos National Laboratory, New Mexico.*