Libraries in a Digital Age: Current Value and Future Promise

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Incoming President (2019-)

IATUL (International Association of University Libraries)

Taiyuan, Shanxi, 16 August 2018
564,000
People living in Sheffield
Nearly 60,000 of which are students

A safe city
England’s safest major city, according to the UK Peace Index
Awarded the Purple Flag for city safety, making it one of the safest places in the country for a night out seven years running

A creative city
Home to the largest community of artists and designers outside London
Known for its music, art and digital scenes

A green city
60 per cent of the city is green space
Over two million trees, 250 gardens, parks and woodland areas and a third of the city lies within the borders of the Peak District national park

An affordable city
Top 10 most affordable UK university cities
Student Living Index by Natwest 2017

University
A world-class university
– a unique student experience
– voted first for library services (THE Times Higher Education Survey 2017)
Outline

• About me and about IATUL

• The value of digital libraries in the 21st Century: a snapshot of our services

• What’s trending in the network environment where we work and live

• What’s ahead
The main objective of IATUL is to provide a forum where library directors and senior managers can meet to exchange views on matters of current significance pertaining to library service development and to provide an opportunity for them to develop a collaborative approach to new challenges.

We are from around 70 countries.
Events with Digital Themes Across the Decades

2018 Conference, OsloMet, Norway
Libraries for the Future- from Inspiring Spaces to Open Science

2017 Directors’ Summit, NUST, Namibia
The Impact of Emerging Technologies on Library Services in Developing Countries

2015 Conference, Dalhousie, Canada
Library Leadership in a Sea of Change

2012 Conference, NTU, Singapore
Library Strategies for New Generation Users

2010 Conference, Purdue, US
The Evolving World of E-science

2008 Conference, AUT, New Zealand
Digital Discovery: Strategies & Solutions

1996 Conference, California Irvine, US
Networks, Networking & Implications for Digital Libraries
The concept of a Digital Library is not merely equivalent to a digitised collection with information management tools. It is rather an environment to bring together collections, services, and people in support of the full life cycle of creation, dissemination, use, and preservation of data, information, and knowledge.

http://www.si.umich.edu/SanteFe/
“In the coming decades, the technologies driving the fourth revolution will fundamentally transform the entire structure of the world economy, our communities and our human identities.”

Marc R. Benioff, Chairman and Ceo, Salesforce & member, World Economic Forum in The Fourth Industrial Revolution (Schwab, 2017)
Student Learning and Engagement
Students value our spaces and content.

- SPACES empower digital learning support collaborations and networking
- UX (User experience) research methods are helping to re-imagine what we can do
- Content is accessible 24/7 where you are
- Students are working with our collections in new ways

Services for today’s students
Virtual assistance
- enquiry and chat
Visual Online help
- screencasts & videos

Assistance embedded where students learn – i.e. their Virtual Learning Environment

Digitising and packaging materials for different audiences

Self service and student (patron) driven acquisitions

VALUE FOR MONEY: THE STUDENT PERSPECTIVE
RESEARCH COMMISSIONED BY THE OFFICE FOR STUDENTS. PROJECT LED BY A CONSORTIUM OF STUDENTS’ UNIONS.

EDUCATION, CONSUMER RIGHTS AND MAINTAINING TRUST – WHAT STUDENTS WANT FROM THEIR UNIVERSITY: UNIVERSITIES UK.
Opportunities for students and staff to be INNOVATIVE, CREATIVE, and FORM NEW IDEAS & CONCEPTS.
Student diversity, employability and citizenship
Universities are committed to the highest quality education that will equip all students for an increasingly uncertain future.

- Students are entering university from alternative pathways (e.g. apprenticeships)
- More students study flexibly and at a distance
- Maximizing employability, innovation and globally-recognized graduate skills concerns all universities
- The aspiration is for our graduates to be leaders in their disciplines and influential citizens.

Services for today’s students
Developing students’ Information & Digital Literacies:
- Pre-entry with Schools and Colleges to enable research-led university experiences & education of apprentices (Advanced Manufacturing Research Centre at Sheffield)

Partnering with online learning providers, preparing for university study and lifelong learning
Negotiating licences for access to resources that meet needs of global learners
Information and Digital Literacy Framework: For education, employment and citizenship.

Information and Digital Literacy (IDL) enables and empowers learners. It builds information literacy with digital capabilities transcending technology, skills and content. It promotes information retrieval and development for the digital age. It enables learners to discern and draw inferences in a critical unstructured manner, acquire in-depth perspectives of new knowledge, demonstrate integrity in a collaborative environment and make a contribution for others to follow.

Information and digitally literate students are appreciative and discerning and are able to locate, evaluate and negotiate information as a critical task. They can process, share and exchange digital information within an ethical context. They take the ability to understand and apply critical digital literacy to enable a research and learning experience. They will posit active digital citizens and digitally literate students are responsible and empowered citizens who can develop positive and influential digital identities.

Discovering:

Discovers the critical thinking which enables learners to develop search strategies and utilize a broad range of resources and disciplines-specific resources to discover tools to navigate discovery. The depth of the discovery might be guided, inquiry-based or unstructured.

Understanding:

Understanding the literacy which enables learners to identify and apply content to a more proficient academic reading from a broad range of media, both visual and visual, and to become critical in critical library.

Questioning:

Questioning is the literacy which enables learners to analyze, evaluate content and discuss critically on information. They can identify the key elements of information and digitally literate, clearly and explicitly demonstrate the literacy of understanding.

Referencing:

Referencing is the literacy which enables learners to select information from a broad range of sources, building on their own evaluation of existing knowledge. They can present evidence of an author's voice by citing sources, using academic skills of consistency and referencing academic bibliographies. They can sift the information in a decision-making role to judge the ethical and ethical source of information and digitally literate, clearly and explicitly demonstrate the knowledge and ethical play-acting.

Creating:

Creating is the literacy which enables learners to blend ideas and produce new knowledge. Knowledge is created through the use of sources, references, resources, tools and auditory approaches.

Communicating:

Communicating is the literacy which enables learners to blend ideas and produce new knowledge. Knowledge is created through the use of sources, references, resources, tools and auditory approaches.
Governments want to see research benefiting the economy and driving innovation.

**Monitoring the Transition to Open Access (UK, 2017)**

- The **PURPOSE** of **Institutional Repositories** is often multifaceted.
- 256 UK repositories (OpenDOAR)
- Enabling discovery and re-use of research outputs, original collections, theses; linking to datasets; & publishing activity
Research Communication and Research Data

- Discovery
- Visualisation
- AR & VR
- Text & Data Mining
What will the 4th Industrial Revolution mean?

The Fourth Industrial Revolution
by Klaus Schwab
What’s trending now

• Gartner 2017 Hype Cycle
• Horizon Report 2017 for HE
• EDUCAUSE Top 10 IT Issues 2018

• NGDLE: Next Generation Digital Learning Environment
• Active learning classrooms
• Redesign of learning spaces
• Learning analytics
• Mobile devices and apps
• Collaboration tools
• IoT
• Natural User interfaces
• Artificial intelligence (AI)
• Uses of APIs
• Information Security
• Data Management & Governance
• Advancing cultures of innovation
“Universities will be caught up in ‘Olympian’ levels of competition in coming years as countries race to make advancements in fields such as artificial intelligence and robotics.”

Sir Keith Burnett, President & Vice-Chancellor, The University of Sheffield. (2017)
Technological megatrends (Physical)

- Autonomous vehicles
- 3D printing
- Advanced robotics
- Smart materials
Technological megatrends (Digital)
Internet of *all Things*

Schwab, 2017.

Sensors, smaller cheaper faster, in homes, clothes & accessories, cities, transport, energy networks, manufacturing processes.

Not just financial transactions. Registrar for certificates, marriage licenses, education degrees.
AI, Machine Learning and the Age of Algorithms

• Historically, ‘Algorithms were not grandiose things’

• Today the term is being used to mean something different, broader and less clearly defined.

• And now we see Machine Learning commonly brought into this discussion.


For libraries, AI has the potential to offer new synthetic opportunities (i.e. synthesising disparate data sets) to allow presentation of information in different contexts and different modalities or conditions. (e.g. historical events and the climate at the time.)
The *Machine Learning Research Network* is a forum for researchers working with machine learning based at the University of Sheffield. Coordinated by the *Machine Learning group* in the Department of Computer Science, with support from the *Statistics group* in the School of Mathematics and Statistics, we host a series of activities and events that fall under the umbrella of the network. These currently include a regular seminar series and a fortnightly book club. We will host special speakers, code cafes and collaborative forums, alongside other resources including a blog series and software examples.

The aim of the network is to promote collaboration and to provide support for researchers and students who are working with or have interest in machine learning topics. We also promote the *Open Data Science Initiative* and the philosophy of resource sharing in the research community, particularly research software.
What we can look forward to . . .

### Tipping Points expected to occur by 2025

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<td>10% of people wearing clothes connected to the internet</td>
<td>91.2%</td>
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<td>1 trillion sensors connected to the internet</td>
<td>91.0%</td>
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<td>The first robotic pharmacist in the US</td>
<td>86.5%</td>
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<td>The first implantable mobile phone available commercially</td>
<td>81.7%</td>
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<td>The first transplant of a 3D printed liver</td>
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<td>The first AI machine on a corporate board of directors</td>
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SAVE THE DATE

40th Annual IATUL Conference

23 – 27 June 2019

Perth, Australia

www.iatul2019.org

Thank You
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