Title:
Aspiration to Implementation: building an enterprise digitization capability at the University of Melbourne

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Introduction

The World Library and Information Congress of the International Federation of Librarians Associations and Institutions (IFLA) in Singapore during September 2013 provided an opportunity to engage the professional community in discussions on the transformational nature and impact of digitization and share our journey in building an enterprise digitization capability at the University of Melbourne Library, Australia. The format of presentation i.e. poster was purposeful to maximize engagement, interactivity and with the aim to demonstrate how the traditional printed format of the poster can be enhanced to translate concepts by integration of QR codes and an embedded mobile device (iPad) connecting the user to interactive digital content to illustrate just what is possible to enhance the flat content. The use of 3D fabrication enabled integration with a mobile device and hence supporting a dynamic display of both capability and scholarship.

Building an Enterprise Digitization Capability

Established in 1853 The University of Melbourne has embarked upon a bold strategy to ensure its place as one of the finest universities in the world, a strategy founded upon excellence in research, learning and teaching, and engagement. Melbourne aspires to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and knowledge transfer.

The University has a rich, complex, and ultimately voluminous, array of cultural, scholarly and research material that is of great interest and value to the University community, scholarly researchers as well as the global community. In 2008 the Vice Chancellor led an Information Futures Commission which, after broad consultation, developed Melbourne’s Scholarly Information Future, a ten-year strategy which guides scholarly information services, collections, systems, technologies and infrastructure. A key aspiration of this strategy was the imperative to unlock the rich, complex array of cultural materials of great interest and value to scholars and the global community. The University acknowledged the critical role that digitization plays in achieving this vision.

Since the strategy endorsement in 2008 we have progressively moved from a digitization environment that was uncoordinated, ad hoc and lacked centralized expertise that led to a proliferation of isolated,
under-resourced areas producing inconsistent and indifferent quality images to our goal of an exemplar digitization framework, program and enterprise capability for the University to leverage. Along this journey we have confronted many challenges but also seized many opportunities.

Most challenging in the early development stages was the constrained economic environment following the global financial crisis. We developed a strategy and policy engaging key stakeholders in our vision and the potential to be realized. We were successful in obtaining central university funds to build a purpose built facility to the highest standards. The University also invested funds to facilitate achievement of Scholarly Information Futures’ aspirations and with Library investments resulted in purchase of key equipment to increase scope of capability and output.

To develop the new center (University Digitization Center - UDC) we focused on broadening the established capability grounded in microform services and corporate scanning. We leveraged expertise of a research center within the Library that has a key focus on examining the role digitization plays in contemporary research practice and scaled up the range of equipment and modest investment in additional staff. During establishment it was important to define the services and scope of operation and also look forward to plot a development path to continue to facilitate the achievement of objectives of the University. The UDC is not attempting to undertake all digitization for the University but act as the primary means through which standardized and sustainable practices are promulgated.

**Establishment Challenges;**

- **Demand outstrips capacity** – in response we established bookable self services facilities with our staff providing oversight but the client undertaking the work. Development of criteria and principles to prioritize digitization projects and potentially outsourcing projects to trusted providers assisted in managing expectations.

- **Skills** – these were mostly developed “on the job” with staff having a foundation in micrographic and imaging services providing a solid foundation to build on. Some of the unique challenges required specialist technical skills not met by central IT services which needed to be filled by appointment of a technical officer with skills in database development and high level web development skills.

- **Technical challenges** – With the increase in demand it became important to identify ways to streamline processes to gain efficiencies and better control over projects. This led to a close examination of the primarily manual processes to translate these to a more integrated and automated model of scanning methods and workflows. It became clear that there was not a one size fits all solution as each collection digitized presented its own unique challenge, thus it was important to build flexibility and adaptability into the process and have the ability to adjust workflows to suit each individual situation. A project management tool was developed using Filemaker Pro to automate processing. In further attempts to make digital objects more useful for end users UDC has developed mechanisms to append meaningful descriptive metadata (DC, IPTC, PRISM) to all files prior to archiving or delivery to the repository.

- **Resourcing** – skills transfer to other library staff was a key objective with the potential to utilize these resources in periods of low demand in libraries and funded projects allowed engagement of casual assistance.
• **Sustainability** – maintaining the profile and visibility of the new digitization center was important. Keeping key decision makers engaged in the progress and highlighting the achievements allowed for opportunities to leverage funding opportunities. A portion of the capability was directed to income generation by provision of services to external cultural institutions. This needed to be carefully balanced so as not to degrade the level of service and support for the University.

• **Digital Preservation** – There has been significant lag time between the development of the capability for quality digital capture and the development of a robust curation and preservation process for the management of digital assets and deposit into readily accessible platforms for user access. In 2012 a Digital Preservation project commenced investigating the needs of a large research University for digital preservation and a strategy awaits official endorsement.

At the close of 2013 we are confident that we have moved significantly towards our goal of an exemplar facility and range of services. The modest suite of equipment has grown substantially to meet demand over the last two years and currently in operation is:

![Figure 3](image1.png) **Figure 3** Staff member operating the Zeutschel OS 1200V

![Figure 4](image2.png) **Figure 4** Treventus ScanRobot 2.0

**Large Format and book scanning:**
- Treventus ScanRobot 2.0 MDS,
- Zeutschel OS 14000 A1 Scanner,
- Zeutschel OS 1200V,
- ATIZ A2 book-cradle scanner

**Document Scanning:**
- Kodak i620 High volume scanner with Ascent Capture, Kodak i280 High volume scanner

**Slide Scanning:**
- A3 flatbed reflective/transmissive scanner – Espon 100900 XLK
- Flatbed scanner: A3 Document Scanner Fujitsu fi-6670

**3D scanning and Printing**
- PicoScan Structured Light 3D Scanner
- 3D Touch, Object Scholar
Our range of service covers currently, digitization (of books, maps, prints and like material), digital fabrication (3D printing and scanning of objects) consultancy and advice, self-service digitization facilities and training. From 2012 the average number of images processed is per annum is close to a million and the total number of images produced since its establishment in 2009 is close to 5,000,000.

Digitization as Transformation
The value of digitized resources for learning, teaching and research should not be underestimated. Digitization is a critical enabler to increasing access across our cultural heritage, bringing collections out of the dark and connecting people and communities.

Digitized resources continue to transform research process by increasing the value of existing research assets enabling unrealized research unlocking the potential of analogue resources and increasing accessibility. Digitization can also facilitate the ability to create new research data. Unlocking the potential to analyze the content of these digitized resources and combine them in new ways to create new research data.

The University Library has focused a large part of our capability on the creation of digital surrogates of our cultural resources and collections. This allows the University to maximize the benefits of these treasures to showcase cultural content via open access repositories, virtual exhibitions and creation of mobile apps to engage
new audiences. This increases the opportunities to reach new markets, communities and potential benefactors who may never had the opportunity to discover this material previously. A secondary benefit to this digital exposure is that it limits the need to access the original artifact thus contributing to the preservation and protect of unique resources. It could be argued that one of most impactful benefits of the digitization is creating, preserving and connecting public knowledge and communities. In 2013 there were close to 50,000 downloads of the content digitized from our cultural collections. With Australians the highest users it was also downloaded from countries like Peru, Egypt, South Africa and Kuwait.

The only constant is change and technologies continue to evolve. One of the most transformational that has attracted much attention is 3D fabrication. It has been described widely as this century’s most disruptive technology. This technology paired with 3D scanning/digitization has enabled the realization of another level of interaction with special and cultural collection objects. Its potential is yet to be fully explored and exploited but at present it provides unique preservation and visualization opportunities.

Acknowledgements:

Thanks to; Dr Leo Konstantelos, Anna Shadbolt, Ben Kreunen, Silvia Paparozzi, Adrian di Lorenzo and Joe Arthur for assistance in original poster development

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University of Melbourne Growing Esteem http://about.unimelb.edu.au/strategy-and-leadership

University Digitization Center, www.digitisation.unimelb.edu.au

Figures

1. Poster Display at IFLA Singapore 2013 Photo: Donna McRostie

2. Lighting for illuminated manuscripts used controlled reflection to show the extent of gold leaf. Reproduction of Leaves from a Book of Hours, Illuminated Manuscript 1408, University of Melbourne Special Collections. Screen Shot: Ben Kreunen
3 Staff member operating the Zeutschel OS 1200V Photo: Ben Kreunen

4. Treventus ScanRobot 2.0

5 Objet Scholar 3d printer. Photo: Ben Kreunen

6. Images scanned at higher resolutions to preserve fine detail. Reproduction of Melbourne Flinders St from Melbourne Railway station, A.Morris & c photo E.Gikis lithograph 1864. Taken from The Melbourne album : containing a series of views of Melbourne & country districts : respectfully dedicated to, and patronized by His Excellency Sir Charles Darling, K.C.B. by the lithographer and publisher, Charles Troedel. University of Melbourne Special Collections . Screen Shot: Ben Kreunen
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Title:  
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Date:  
2014-04

Publication Status:  
Accepted

Persistent Link:  
http://hdl.handle.net/11343/40856