

# THE INFORMATION FACTORY

## Reimagining the State Library of Western Australia

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### Abstract

*The Department of Culture and the Arts (DCA) coordinates the strategic asset management of state-owned arts and cultural facilities in the Perth metropolitan area. Included in the Culture and Arts portfolio is the Alexander Library building (ALB), now 35 years old and currently housing the State Library of Western Australia (SLWA). Like many library buildings around the world, technological and social change is driving a shift in usage patterns in and around the building. The key aim of this project is to examine how the building might continue to effectively deliver culture, arts, technological and information services to the community into the future. The resulting proposed Information Factory is both a speculative supposition of future directions for the State Library of Western Australia, as well as an architectural design proposal for the Alexander Library building as a piece of infrastructure which enables the delivery of a broad range of services. The Information Factory will propose a hybrid library, incubator, research and small to medium scale digital fabrication facility. As the name suggests, the project seeks to imagine the public library not just as a repository of knowledge, culture and information, but also as a place that plays a significant role in its production.*



**Figure 1 : A representation from the experimental design concept. The image shows a new western entrance denoted by a large gantry crane for the import, export and display of cultural artefacts.**

## 1. Introduction

The Culture and Arts Portfolio continuously reviews its assets to ensure the effective utilisation and sustainability of its infrastructure and services. This project specifically focuses on a review of the Alexander Library building which is located within the Perth Cultural Centre (PCC). With a current gross lettable floor area of 22,775m<sup>2</sup>, the building is the largest piece of cultural infrastructure within the precinct, representing 52% of the total floor area within the PCC. The building currently houses the State Library of Western Australia (SLWA) and the State Records Office (SRO), with large portions of the building allocated to storage of the State's collection. The DCA has already identified benefits associated with relocating portions of the material to alternative sites and is currently investigating available options.

It is recognized that technological change is impacting the delivery of library services around the world and the SLWA is no exception. While many of these impacts are positive, there is both the need and opportunity to address what a contemporary library might be in this building and within the greater PCC. The project is partially about the architectural aesthetics of the building and the individual spaces, however the majority of the project focuses on what could potentially *take place within* these spaces. An increasingly technologically literate public will expect to interact with advanced methods of collecting, and synthesising information. If the Library is to remain relevant, it needs to be responsive to the changes in information technology.

## 2. Process

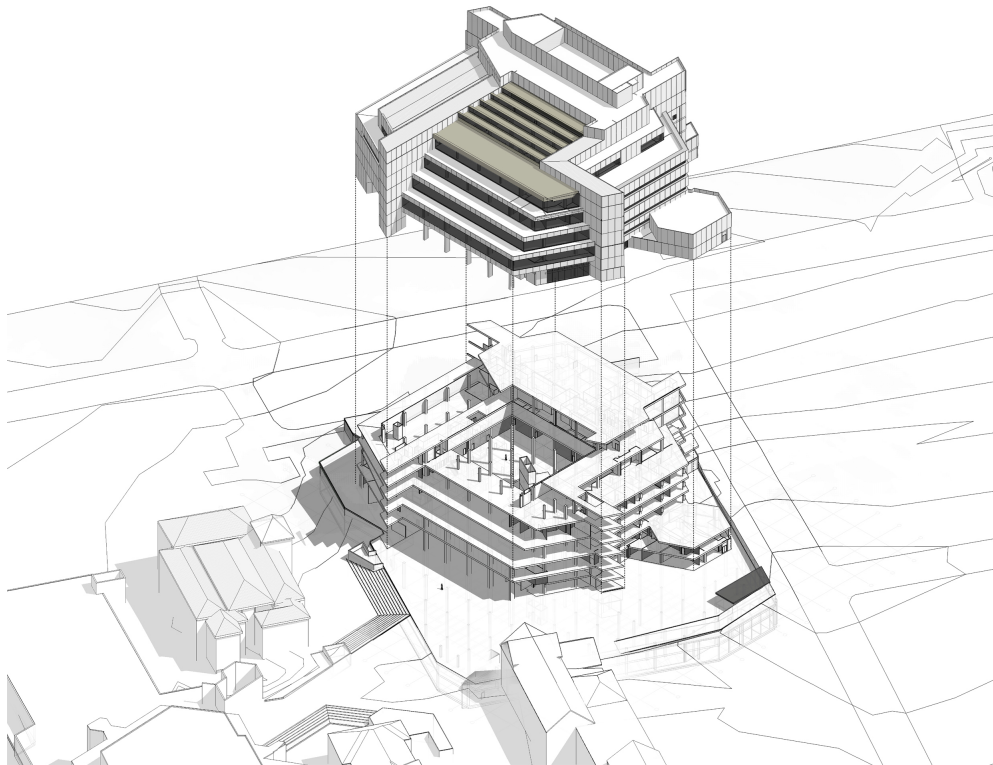
### *Identification of Conceptual Drivers and the Library as a Paradigm*

A significant portion of the project involved consideration of the changing library paradigm and how the State Library of Western Australia and the Alexander building might appropriately respond to such changes. During this stage, examining existing libraries was deliberately avoided and the focus was placed on *information*, both its forms and formats, as well as contemporary methods and tools of interacting with, translating and manipulating data. Synergies with local and national STEM (*Science, Technology, Engineering and Mathematics*) educational and economic strategies were considered.

### *Building Information Modelling (BIM) and spatial analysis of existing site*

Built in 1985, the Alexander Library building is of concrete construction with an 8.4 metre column grid and concrete waffle slabs. The building comprises eight levels, six accessible for library functions and storage as well as an additional two levels above for plant requirements.

To conduct a spatial analysis of the building and assess areas likely to become available in the near future (due to reconfiguration of some of the storage), a BIM (Building Information Modelling) 3D model of the Alexander Library building was produced using Autodesk Revit. The BIM model aids in producing digital representations and drawings which further enhance the understanding of the asset to the relevant parties. As well as being extremely important to understanding the Alexander Library building and formulating design proposals, a key use of the model has been to output Microsoft Excel schedules tabulating the various existing spaces and areas within the building. Once the model was produced, this process could be automated and re-run quickly if any changes occurred to the building.



**Figure 2 : An ‘exploded’ view of the existing Alexander Library building (Revit BIM model).**

### ***Design: Experimental and Incremental***

Once new uses, roles and technologies for a contemporary library were identified, design proposals were explored. This is to be delivered in two parts, A and B. The purpose of Part A is to be an experimental and highly speculative re-imagination of the State Library of Western Australia and the Alexander Library building. This unfettered scope assisted with creative ideas generation. The second stage, Part B, was to take inspiration from Part A, but map a somewhat more realistic path for the Alexander Library building to enable the delivery of library services in new ways.

## **3. Conceptual Drivers**

Most people would be familiar with the way the digital age is revolutionizing how we work, create and play and it would be naïve to think these changes would not have a profound effect on how libraries store, generate and provide information services. A first step is to understand the current and projected Information Landscape.

### ***Mapping the Information Landscape: New Forms, Formats and Literacies***

The term Information Landscape not only explores the increasing number of forms and formats of information, but addresses the changing ways in which we interact with, collect, translate and manipulate data. With increasing computational processing power, more accurate and sophisticated text and image recognition processes, autonomous algorithms, increased interest in coding as well as platforms for virtual reality, the ways in which we interact with information are changing. Due to their increased capabilities and affordability, many of these technologies are available and desirable for libraries to deliver. Often, new digital tools are readily available and open source, providing increasing opportunities for sophisticated tools to be placed in the hands of otherwise untrained users. In an increasingly data-rich environment, skills involved with these contemporary methods of interacting with and synthesising information will become more important and commonplace. The library can take a central role in communicating and equipping the public with these opportunities and skills in the same way that libraries have historically supported more traditional literacies.

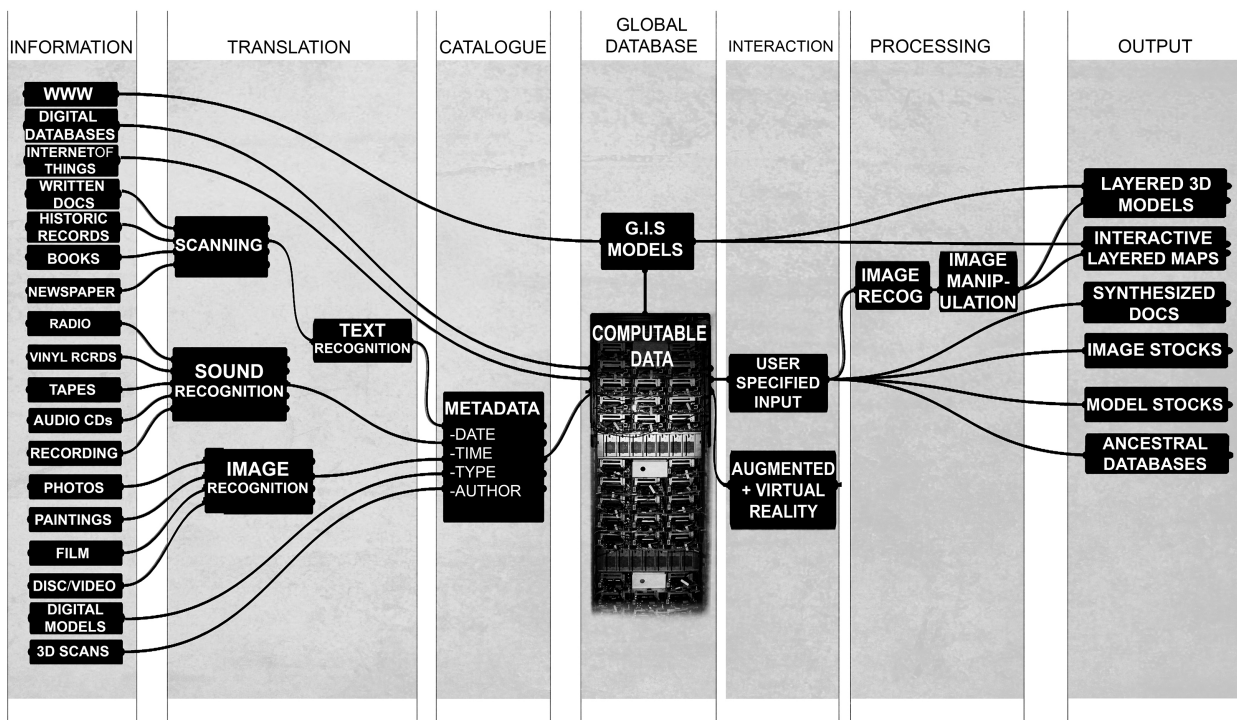


Figure 3- Mapping the Information Landscape

There is a direct link between the current and predicted Information Landscape and the functional programming of a future library. The map above also provides a diagram for the design. There needs to be spaces to access and translate information in different forms, places to preserve and catalogue information as well as spaces for the public to interact with information in different ways and exhibit the output or installations that have been produced.

### ***Information Machines: Contemporary Methods of Collection, Representation + Interaction***

The increasing range of formats and data tools are already manifesting into many examples of exciting information projects. *Digital Humanities* seeks to invent and provide access to tools to interrogate large databases of information, to analyse and represent the material in ways not previously possible. A key example is the Venice Time Machine Project, an accessible virtual 'Facebook and Googlemaps' of medieval Venice which makes available in digital form art, architecture, commerce and historical events. This information system has been populated by digitizing and translating approximately 80 kilometres of hand-written records. (Kaplan, 2013).

Commonly used in engineering, mapping and GIS systems as well as surveying, technologies such as 3D scanning and photogrammetry are changing the way we not only measure our environments, but how we record our history. Several projects are currently seeking to record places and items of significance in 3D digital formats, preserving them in the face of the rising risk of politically motivated destruction, as well the threat of environmental disasters. Information can therefore be represented as virtual experience, meaning that the potential to spatially interact with places, buildings or even historic events through means of digital models and augmented or virtual reality will become increasingly prevalent within libraries and museums.

### ***Closing the Information Loop: Machines of the Third Industrial Revolution***

The link between data and information to fabrication and the physical world is gradually becoming more direct. With advances over recent decades in digital fabrication technologies including 3D printing and scanning, robotics and computer numerically controlled (CNC)

machines, the technology is rapidly continuing to make its way into universities and schools and to a lesser extent, into museums and libraries. Given the more direct link between information and physical objects, this technology within libraries is a logical step. For instance, we would not find remarkable the idea of a medical student using the library to print or photocopy an image of the brain, however, why not have the option to experience this same information in other ways? Why not walk through a scan of the brain, using augmented reality? Why not have the option to take that data, and produce a 3D model of the item of interest? For the community, the benefits are enhanced learning, discovery, entertainment and the possible economic benefits that may result.

### ***Creative and Collaborative Networks: Incubators and CoLabs***

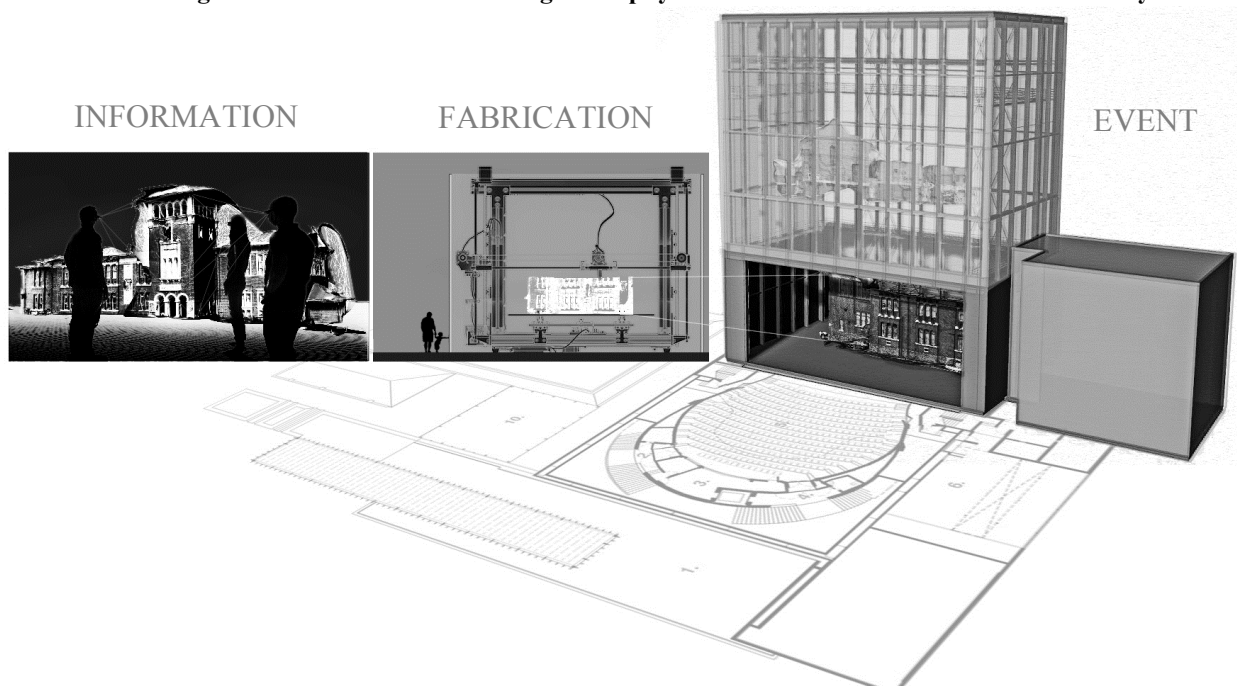
A trend both locally and abroad is the emergence of Collaborative (CoLab) spaces which act as incubators to numerous multidisciplinary groups including business start-ups, artists and community or educational groups. All of these groups deal with, use and produce information and experimental tools. Space could be available within the building for collaborative groups which would be fueled by the resources that the Information Factory holds, and in-turn, support development and ultimately, the richness of the PCC. Such a hybrid facility should leverage and showcase local skills to solve local problems.

### ***Leaving the Factory Floor: Curation of the Cultural Centre and the City***

Given the context of the PCC, with its proximity to two art galleries, the Museum and the State Theatre, there exists the exciting opportunity to blur the boundaries between these various cultural institutions. Imagine exhibitions, installations, stage sets and art works, digital or physical, produced for the PCC, within the PCC. The visible nature of this 'making', as a performance in itself, has the potential to increase opportunities for collaboration between the institutions, creative and collaborative groups and businesses, as well as schools and the community, exposing people to the extensive range of skills and activities that currently exist behind closed doors.

#### ***CLOSING THE INFORMATION LOOP: INFORMATION > PRODUCTION > CURATION***

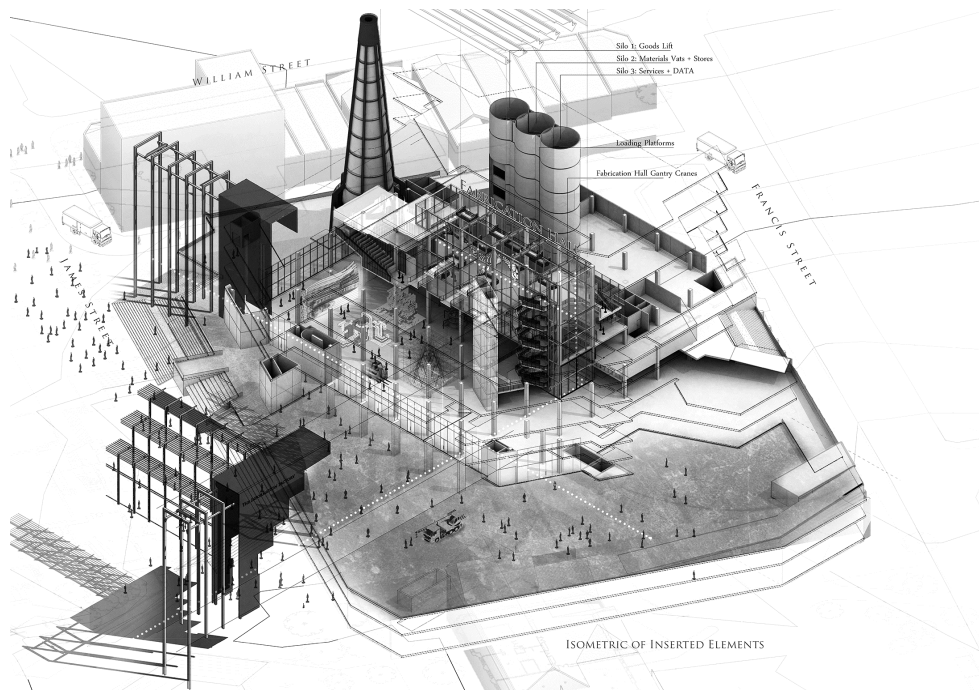
**Translating data and information into digital or physical installations for the PCC and the city.**



**Figure 5:** The diagram suggests the public production of a stage set, showing the interaction with the virtual set, fabrication of the set, to curation, in this case the resulting use within a theatre production

## 4. The Information Factory: Speculative Design

The proposed building design houses the library and research centre, exhibition spaces, Scitech, and public and private collaborative office spaces. This includes workshop space for artist-in-residence programs and flexible spaces which could allow visiting groups of all ages to participate and use the resources available within the Information Factory. Central to the proposal is a digital fabrication facility and workshops which houses digital labs and numerous digital fabrication tools and robotics. Augmented and virtual reality spaces are available to allow users to interact with and design digital models in an immersive and spatial way as digital exhibitions, or perhaps to examine an item in digital form before it was to be fabricated. The exhibition space is proposed to be configurable for exhibitions, events and retail functions.



## 5. Conclusions and Future Work

Whilst the physical outcomes of the design are highly speculative, the experimental design proposal both excited and challenged ideas around what a future library could be. Much of the future work around the project is further establishing the quantity of material which can be either re-arranged or relocated to free up floor area. Once complete, the focus is to explore design interventions which could be staged over time and could allow the Alexander Library house and integrate with additional functions and programs. The selection of new program is assessed upon its potential to benefit the culture, arts and information landscapes and as a result, further enrich the services that the library and PCC provides.

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