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Information exchange : the effect of new information typologies on library architecture

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INFORMATION EXCHANGE:

THE EFFECT OF NEW INFORMATION TYPOLOGIES ON LIBRARY ARCHITECTURE

by

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Master of Architecture Degree, 2009

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Abstract

This thesis document investigates contemporary forms of information media and their effects on library architecture. The research portion of this document concludes with a design project that illustrates a solution to programmatic infill imposed upon academic libraries built prior to the rise of digital media. The casualties of injecting additional program elements into older libraries are the print collections. Many such libraries have adopted roles resembling community centres and have lost spaces devoted to quiet study and book stacks.

The driving concept for this project was to return the program of the Ryerson University Library to a state closer to its original design. By reintroducing lost collections and quiet work areas, the interactive and digital program elements are forced outside the walls of the original building. This expelled program has been reformatted into a new archetype and is skinned as such, creating an additional university building focused on information exchange.

Acknowledgements

I would like to thank my family for their constant support and encouragement throughout this process. There was a time not so long ago when getting to this point was unimaginable; Yet here I am. I must also thank Madison for her support, patience and understanding of the (ab)normalcy of spending all night working in the studio. Her home cooking and words of encouragement have helped to keep my strength up.

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This book is dedicated to my grandpa, Harry Greenwood.

Though you never knew it, thank you for inspiring me to get here.

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1 Introduction

Library architecture is constantly changing. It is pressured to evolve due to continuing advancements in the way that humankind deals with information. From the first moment one individual attempted to convey an idea to another individual we have been looking for new and better ways to record and store these ideas. As the ideas become more complex, so do the methods of organizing and disseminating this information.

The earliest examples of the library being a house of information were caves in which etchings and paintings could be found. It is still possible to this day for an individual to enter these caves and interpret the ideas and stories of the original authors. This power of stable information sharing has become very important to our communal species. This is why great houses of such information are still being built to store and make accessible humankind's collective knowledge base. As the format of media in which information is recorded changes, so does the manner in which this new media is interacted with. This has implications for the manner in which new media should be housed and how it might coexist with other manifestations of recorded information. The most recent example of a library's role in housing mixed media involves the current advancement of digital media types and the personal computer. A new spatial paradox is emerging in which digital media containers continue to shrink as technology advances while the creation of digital content is accelerating. This phenomenon is sparking a great deal of debate on how library design should proceed.

It is the many levels of opinion and debate that have driven the basis for this research document. In the following pages the history of recorded information and libraries will be explored in greater depth. Implications and considerations for the future of Library architecture will also be explored. This research document will conclude with a design project case study targeting a scenario commonly encountered in this pivotal period for information media.

2 History of Recorded Information

2.1 . History of Books

Prior to the written word, information transmission between individuals and generations could only be accomplished through vocal description or physical demonstration. The possibility of that information becoming heavily distorted over the course of a few such transmissions was high as can be illustrated in the children's game "broken telephone." As one individual passes on the information from another individual it could only be done according to their own personal understanding and interpretation of the information and was passed on as such. As a result of this, each additional transmission of information would be subject to the understanding and interpretation of its recipient. This created great diversity from the original information.

Through the course of mankind's intellectual evolution, we have devised methods of graphically representing this information in a more permanent fashion. This information was conveyed originally as picture art that created distinct representations of objects and actions. This format evolved further into iconography and eventually into our current alphabets. In creating more

Figure 2.1.0 - The Lascaux Bulls.
This painting in France is thought to be 16,000 years old.

permanent versions of thought and information, it could be conveyed in its original form, greatly reducing distortion that now could only occur on an individual basis due to the interpretation of the reader/recipient. For this reason, this recorded information in all of its forms has been considered the physical representation of knowledge, giving it enormous value and making such items prized possessions of their owners. This history of permanently recording information through artistic representation and writing has evolved into our modern book and has lent many elements to the formatting and organization of contemporary digital content. The following paragraphs represent some of the significant historical transitions throughout the evolution of the book and beyond.

2.1.1 . Stone, Clay, and Wax

The earliest format in which humankind permanently recorded their information has been found on the interior walls of caves. Examples of this have been found as far back as the last ice age (over 30,000 years ago). The two primary media used were engraving and painting. Engraving tools were extremely primitive so early examples consisted of little more than etched characters made by crudely formed rocks. Early paintings were accomplished by using charcoal, red clay or animal fats brushed onto cave walls by fingers or sticks.

Images and characters eventually left the walls in the form of tablets. These tablets were made of many different materials depending on the regional location in which they were found. Some of the most popular of these materials were stone, clay, wood, and wax. These portable tablets signified the beginning phase of ownership and collectibility of written works. As a result, the value of these tablets became more than the sum of their physical materials. Their value became more closely aligned with the information committed to them as well as the craftsmanship by which they were created.

2.1.2 . Scrolls

Early paper-like materials could be rolled for light-weight storage and transport (Bagnall, 2003). The two primary materials which composed the early scrolls were papyrus and parchment. The earliest of these two media is papyrus which was credited to Ancient Egyptian origins as early as 3000 BC. The papyrus plant is a triangular stemmed reed that grows along the Nile River.

It is believed that the papyrus sheets were created with the inner fibrous layers of the papyrus plant. These layers were flattened and arranged to lay in parallel strips and while still moist with sap they were reinforced with additional parallel strips arranged perpendicularly to the original strips and then pressed tightly together into a single flat sheet. This fabricated sheet was then left to dry in the hot sun before it was ready for inking (Bagnall, 2003). The second of these media is parchment, which was conceived to emulate many of the functional characteristics of papyrus using animal skins rather than plant matter.

Paper, a cheaper alternative to parchment, was first produced in China from old rags, hemp, tree bark and fish nets around 105 AD (Thompson, 2003). Paper was first produced outside China in Samarkand around 750 AD after Chinese prisoners of war were offered freedom in exchange for their knowledge of the process. Paper was imported to Europe until the first European paper mill was created in the 12th century in Catalonia (Thompson).

2.1.3 . Hand-Scribed Codex

The earliest approximation of the book as we know it today was the codex, which first appeared around 100 AD. Codices were pages of carefully handwritten text on papyrus or parchment attached to a spine (Bagnall, 2003). They were initially used exclusively for Christian books, but later became used for other types as well (Bagnall). These early books were manuscripts, generally copied by scribes in the great Cisterian and Benedictine monasteries. The production of a single book was an arduous and time-consuming task. As a result, if the Church not been the vehicle of conservation of knowledge and culture at the time, the whole classical Graeco-Roman heritage might have been lost. In the 7th century Irish monks introduced the space between words, but it wasn't until the 12th century that this practice became popular. In the 8th century, the Arabs studied the paper industry and were the first to produce books in paper. The pages were attached with silk, and the cover was a board covered with leather.

2.1.4 . Printed Book

Around the 9th cenury AD a more efficient means of producing books emerged. Books began to be block printed, that is, printed from a single carved wooden block for each page using the same process as woodcut printing for art. The initial outlay of work to create the wooden block

allowed for efficient reproduction of multiple copies while eliminating variability due to errors or changes made while copying.

Movable type printing was the next great innovation that revolutionized the book. In the mid 15th century, Gutenberg invented the mobile-type printing press. It consisted of individual pieces of wooden, and later, cast metal movable type arranged within a plate on a printing press.

Books printed before 1500 (that is, in the first 50 years of movable type printing) were known as incunabula. This term does not refer to any significant event other than the change in the date. The term "incunabula" refers to both xylographic (whole-page wooden block) and typographic (composition of individual pieces of cast metal movable type) methods of printing. However there is some controversy attached to this definition that insists that incunabula can only refer to typographic printing prior to the 15th century. This is not the most popular belief.

Standard works in Latin inherited from the medieval tradition formed the bulk of the earliest printing, but as books became cheaper, works in the various vernaculars (or translations of standard works) began to appear.

In the mid 20th century, duplication of individual portions of printed works became possible with the invention of photocoying machines. This is yet another stage in the evolution of the printed word toward a portable, accessible, user-friendly format, allowing individuals to have personal copies of selected portions of works at their disposal.

Figure 2.1.4.1 - An example of a block book page with a hand-coloured woodcut image from the "Peregrinatio In Terram Sanctam" by Bernhard von Breydenbach (1486).

2.1.5 . Digital Interpretations

The digitization of printed material, as well as the publication of certain periodicals exclusively in digital format, has increased the accessibility of written works. Digital text takes many forms, including online versions of printed works (such as newspapers and periodicals) and scanned images of printed works (often books or older documents). However, a major shift in the digial interpretation of the printed word has been the introduction of interactive and continuously evolving documents. These new forms of media, such as blogs, websites and wikis, allow users to comment and provide feedback to the writers, and sometimes even modify the documents themselves, creating a sort of dialogue that was previously absent with the permanent forms of print such as the book. However, with this ability to interact with text and exchange knowledge comes the trade-off of a lack of permanent recording in a set format. Books, once printed, remain static (barring damage or destruction). In contrast, the new forms of digital media may be ever-changing, leading to important questions about preserving history for future generations.

2.2 . History of Libraries

As noted previously, the earliest collections of recorded ideas have been found on the walls of caves. In many ways, these caves are the earliest manifestations of the library as a place. Once methods were devised to carry these works beyond a fixed location, they gave rise to collection and exchange. When individuals and families began to recognize the importance and value of such pieces, it gave rise to the concept of the private collector. Due to the high costs of early hand-scribed texts their possession and collection was prohibitive for anyone other than the extremely wealthy.

The ancient Library of Alexandria was conceived at the beginning of the third century. The idea behind it was a translation of Alexander's concept of a great empire into a quest for universal knowledge. The idealistic basis for such a library was in the end its downfall as politics and corruption easily bullied such a utopian concept. The great library was eventually burned to the ground as (what is speculated to be) a result of massive looting, which marked the beginning of the Western civilization's dark ages. This tragic event is a perfect example of how important collective knowledge is to our civilization. With the loss of it, for a long while we lost ourselves. Many centuries were spent after this by scholars trying to pick up the pieces of a lost civilization. It was a common belief that the knowledge base of the ancient Greeks and Romans had

Technology and the library					
Type of communication	**Method of communication**	**Type of storage**	**Method of reading**	**Type of library**	**Date**
Hieroglyphic	Stone, clay or papyrus	Vault	Standing	Private	1000 - 500 BC
Alphabet	Papyrus (rolls)	Vault	Standing or reclining	Private or state	500 - 1300 AD
Alphabet	Animal parchment (decorated books)	Room	Standing or sitting	Monastic	500 - 1200
Cursive handwriting and numeracy	Paper (books)	Chapel above cloister	Standing	Monastic	1200 - 1500
Printing press	Paper (books)	Library	Standing with stall system	University and civic	1500 - 1800
Mass production printing	Paper (books, journals, newspapers)	Library	Sitting with tables	Civic and local public	1800 - 2000
Electronic digital	Electronic	Computer disk	Screen	All types and personal	1990 -
Table Y.1 - Technology and the library.					

been shattered, and then their greatest challenge would be in reconstructing it. In the year 1545 an individual named Conrad Gesner created a comprehensive bibliography of over 10,000 books which he entitled Universal Library. His goal was to create a record of these existing books, enabling scholars to seek manuscripts of interest. He recognized the dangers of all those volumes coming together again in a single place and determined that this would not be necessary if he could create a way to index their existence. In many ways, Gesner is responsible for the transition of libraries from various collections of manuscripts to an organized system to index and navigate the collective knowledge base.

Constituting a larger scale library was, even after Gutenberg's time, an expensive operation reserved for the Church and powerful princes. Printers congregated in urban centres where there were scholars, ecclesiastics, lawyers, nobles and professionals who formed their major customer base. As many diverse types of texts became more available, the access to these books began to open up and descend through the classes. More and more people were reading and thanks to the volume of content spewing out of printing presses, a fear began to grow within the higher powers as to just what type of content these people were ingesting.

By the beginning of the 17th century, the church began to play greater role in the running and organization of libraries. Librarians felt it was their duty to protect the library's patrons and sensor collections by removing what they considered were 'bad books written by heretics.' Many parallels can be seen when comparing this practice to the political manipulation that unraveled the library of Alexandria. The utopian ideal of collective knowledge was yet again being controlled and suppressed.

In one form or another, delivery suppression of knowledge by one powerful body or another dates back as far as the earliest beginnings of the library. With every new format discovered for dispensing information there is a sense of freedom that arrives with it. The arrival of the printing press spawned many small-scale newsletters in addition to printing published texts. In this modern era, our current tool for freely sharing our ideas and thoughts is the World Wide Web.

Library types and functions	
Library type	**Characteristic features**
National library	Legal deposit (all published books deposited) Comprehensive book and journal collection Attached special collections Comprehensive book and journal collection Attached special collections (e.g. Kings Library at British Library) Reference rather than loan Wide range of supporting activities (conservation centre, bookshops, exhibition area, café)
Public library	Loan rather than reference Supporting community or social activities Mainly book-based (as against journal or electronic) Special libraries for children, elderly, local study
Academic library	Emphasis upon supporting learning Extensive research material Large journal collections Extensive electronic/computer systems Networks to departmental libraries
Virtual library	Electronic/IT-based Can be associated with cybercafes or traditional library Exists independently of the buildings Requires home or office based computer network
Special library	Collection based on famous individual, topic, event or place Not normally for loan Mainly research-based Provides archive and conservation function Visit often by appointment
Professional library	Special collection to serve professional body Material not normally for loan Often associated with exhibition area Extensive archive and journal collections Contains a wide variety of material (photographic, letters, plans)
Table Y.2 - Library types and functions.	

2.3 . Library Typologies

2.3.1 . Academic

These forms of libraries exist primarily on university and college campuses. They serve to provide a home for that institution's collection of holdings. The types of holdings in academic libraries may consist of books, journals, research documents, maps, microfiche, and others. Larger university campuses may have more than one academic library. In these cases, the total collection of that university is divided into specialized subject areas depending on each satellite library's individual affiliation with departments and faculties on campus.

One of the major functions of the academic library is to provide an environment for students to study (either independently or in groups), meet, and work collectively. Academic libraries are usually funded primarily by the institution with which they are affiliated.

Independent libraries found in elementary and secondary schools can also be categorized as academic libraries to some extent. However they are usually regulated by a central school board rather than run independently of one another on a school by school basis. School district libraries in Ontario were initiated by Egerton Ryerson in 1850. Egerton is the namesake of Ryerson University in Toronto.

2.3.2 . Public

These types of libraries function primarily as gateways for their community to access literature, computer technology, and study spaces free of charge. The size of these libraries is usually
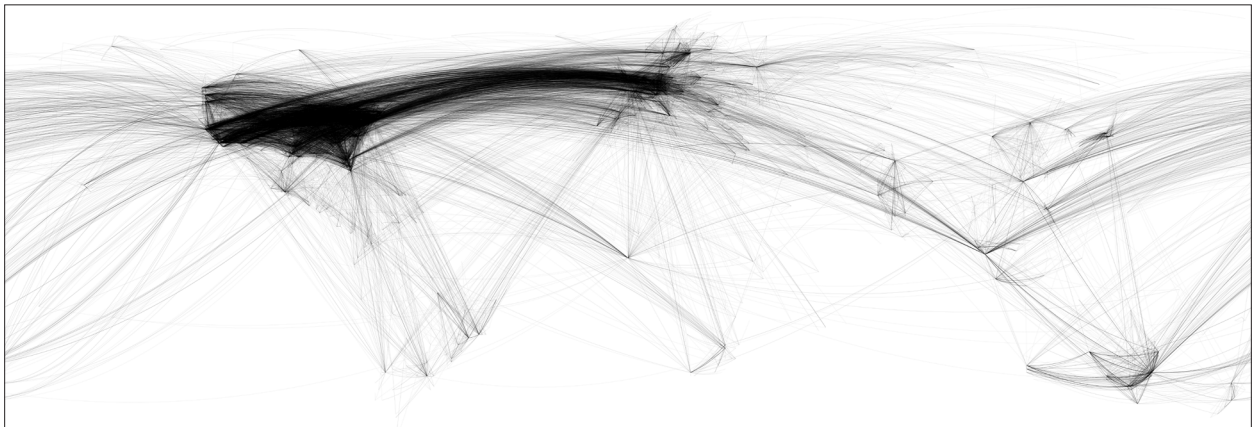
Figure 2.3.2.1 - Internet map showing city to city connections.

human interaction

digital interaction

DB = Database   OSDB = Open-Source Database

print interaction
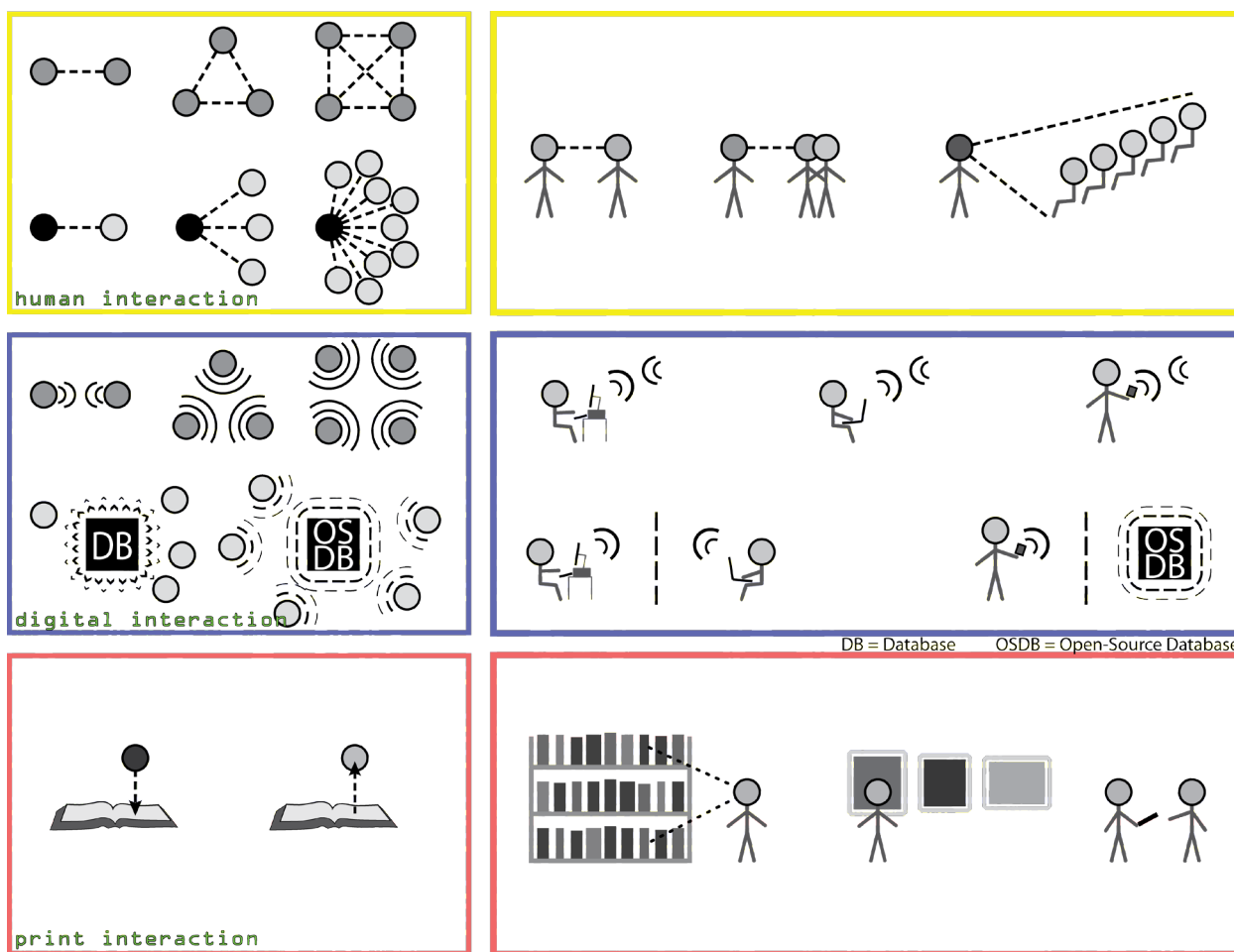
Figure 2.3.2.2 - Types of information exchange and methods of indexing them.

in proportion to the communities in which they are situated. Most public libraries in early 19th century Canada were supported primarily through subscription fees (Beckman, n.d.). Currently, public libraries are usually funded by the municipal government under which they are located. These libraries are primarily governed by a board of directors that regulates each branch as a collective whole (e.g., The Toronto Public Library).

2.3.3 . Private Collection

This the most diverse type of library because it encompasses the entire spectrum of private sector libraries. This ranges from libraries of varying scales established in one's home to the many possible manifestations of private in-house business and corporate libraries. Many large corporate library configurations also have full-time library staff to attend to them.

2.3.4 . Civic

This category of libraries encompasses all libraries and archives that are either provincially, state, or federally funded. These libraries are accessible to the public during regular hours, however in some cases appointments are necessary.

2.3.5 . Monastic

Early books were rare and possessed great value. Much of their value came from the fact that they had to be hand written. This was a tedious task which could only be carried out by individuals educated enough to read and write while also skilled enough to commit themselves to the artistry of this craft. Since it was not common for many educated individuals to seek a profession of doing tedious tasks, it became a very rare and specialized vocation. However, many abbeys were known to have libraries due to the fact that many monks were educated and committed enough to copy many of the manuscripts that arrived with passing visitors. It is within some monasteries where great collections of manuscripts were produced to give birth to impressive libraries. Libraries such as the one depicted in Umberto Eco's *The Name of the Rose.* In Eco's (1983) novel, the great library is described as a labyrinth of books and passageways. In this labyrinth, a monk would grow over time with experience and when he was ready the library would reveal to him new and wondrous books he was only then prepared to receive.

2.3.6 . Digital Databases and the World Wide Web (WWW)

Since the first computers appeared in libraries they instantly changed the way that libraries function. Computers offered quick and efficient new ways of organizing and storing data while providing quick accessing times. At first they were seen as a more intelligent typewriter or 'Word Processor' but in very little time it became apparent that they could do so much more. The next things to go were library indexing cards. Computers could quickly and easily search databases containing the library's holdings as well as cross reference data sets (such as Author's name with Subject area) to provide a more efficient way to search through the library's holdings.

Once the ability to connect many computers together in different geographical locations via

an 'Online Network' was developed, the functionality of the traditional library began to change and expand rapidly. This innovation provided the potential of instantly searching library databases beyond the walls of the library location in which a user was situated. The significance of this was that any user could find a particular book or journal publication anywhere in the world. It was soon after that a system of interlibrary loans was created so that library patrons had physical access to external library holdings via traditional mail services. The implications of this type of technology were enormous. With this type of access to literature, scholarly pursuits of information were broadened to a global scale with the only limitations being transfer times and language barriers.

This global network of computers is known as the 'Internet.' In its early form it was more of a lock-and-key approach to networking information databases between individual computers. The limitation of this configuration was that individuals not affiliated with a physical library did not possess the network addresses and passwords involved in accessing the information, nor did they possess a way to search and find these addresses.

This changed with the arrival of the 'World

IP address

Figure 2.3.6.1 - Library Building.

servers

Figure 2.3.6.2 - Shelves

databases

Figure 2.3.6.3 - Subjects.
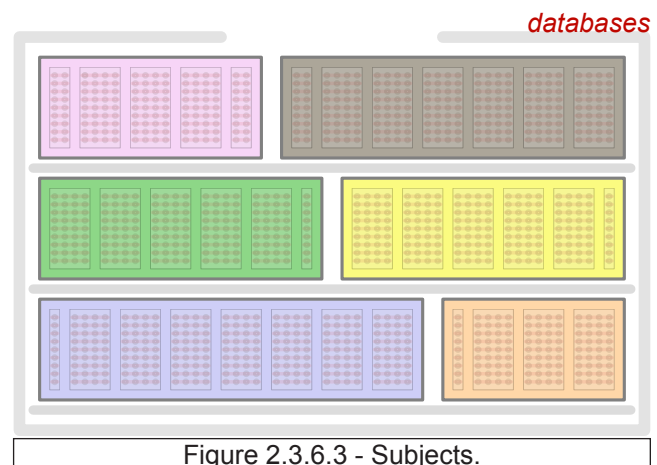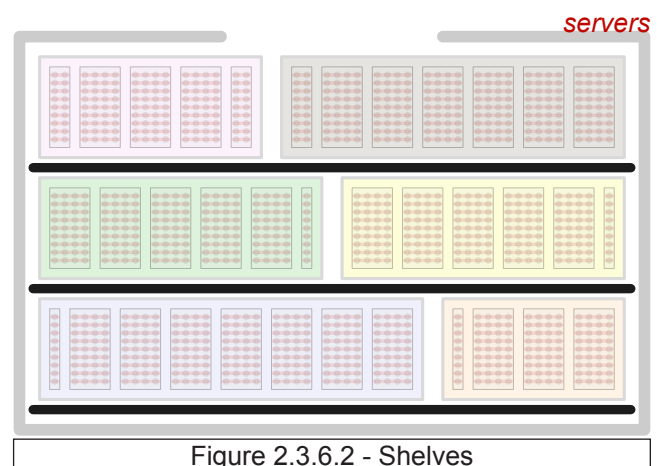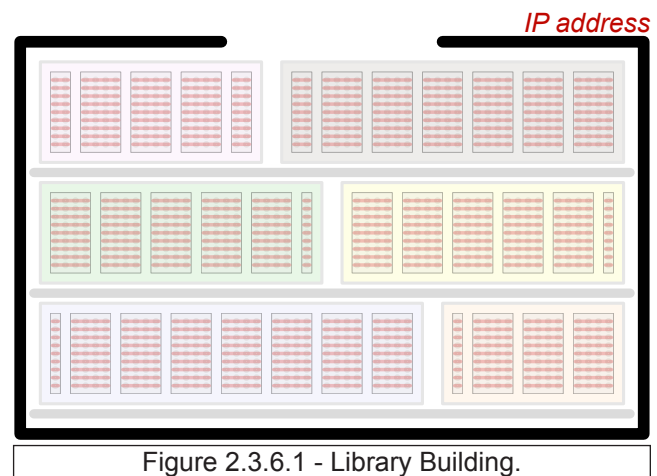
Wide Web' (WWW) which was a platform that could span every connection to the Internet. The benefit of this was that it unlocked the Internet to any user connected to it, and even more importantly, provided a way to search for information if the individual internet addresses (or 'Web Sites') enabled their databases as searchable. Almost overnight the WWW flourished as people wanting access bought 'Personal Computers' with internet connections, broadening the web further with every new connection.

2.3.7 . Books and Libraries as Precedents

In a research document exploring the concept of the Library it is necessary to break down the physical elements of a traditional library structure in order to better understand the nature of the pieces as they work together to complete the whole.

Building

The library building is its physical address in the world. It offers a location for people to go to research, to work, and for recreation. A library building should house its community just as well as it houses its collections. In the traditional sense, a library's physical envelope was its limitation as to the amount of information it could house. Today of course this is only partially true as the physical collections still have spatial limitations. However, library environments now include computer terminals that offer patrons access to abundant digital resources located in-house on their servers as well as beyond their walls.

Floors

Within the library building, its collections are organized and divided in many ways. Some division techniques are subject- and format-driven, while others deal with organizing the physical amount of information printed in the volumes of its massive collections. Multi-storey libraries offer the option of dividing up either physical content or programmatic layouts, or both. The different floors of the library act in many ways like the different shelves within its collection stacks, enclosing layers upon layers of content whether they be in diverse physical formats, digital formats, or programmatic spatial requirements.

Subject areas

Within the library different tactics of collection organization are used. Some methods are driven

by the spatial limitations of the library itself causing content to span many floors or areas of the library (as in the preceding example). Other organizational methods are driven by type of content. Those types can include different media as well as different subject areas. By grouping a collection into smaller subgroups that reflect their content libraries can be easier to navigate. As libraries have increased in size and holdings over the last century, many systems have been introduced to attempt to organize the library's collections. Some of the most popular systems of the 20th century were the Library of Congress Classification System and the Dewey Decimal System, both of which organize books by subject area, arranging them by content within the stacks. Information on given subjects was now located in proximity to other information on the same or similar subject rather than by book title, author, or publisher.

Books

The next division of information exists within the contents of bound volumes. Within bound volumes a library patron can usually find content on very specific subject areas. These areas may include stories, articles, reports, or indexes of information. It is also important to note that it is the bound volume format that most libraries permit patrons to borrow.

folders

Figure 2.3.7.1 - Volumes

files

Figure 2.3.7.2 - Pages

data

Figure 2.3.7.3 - Information
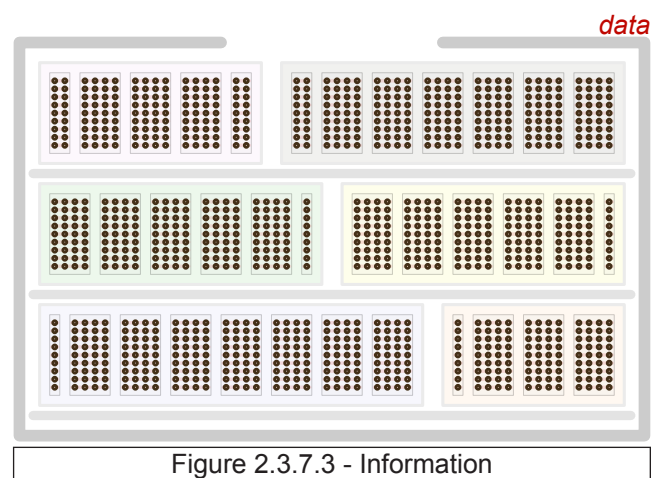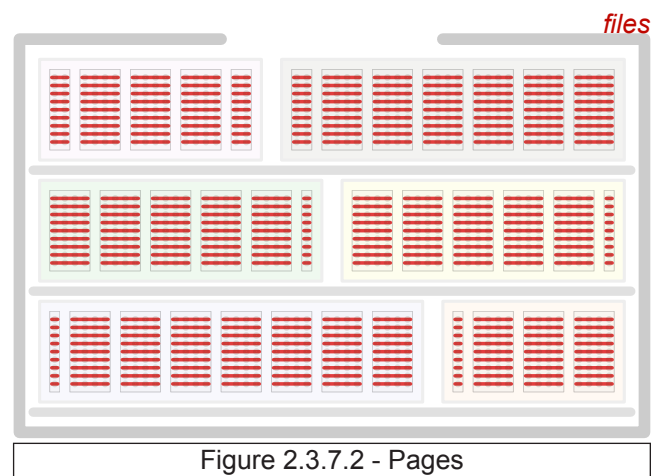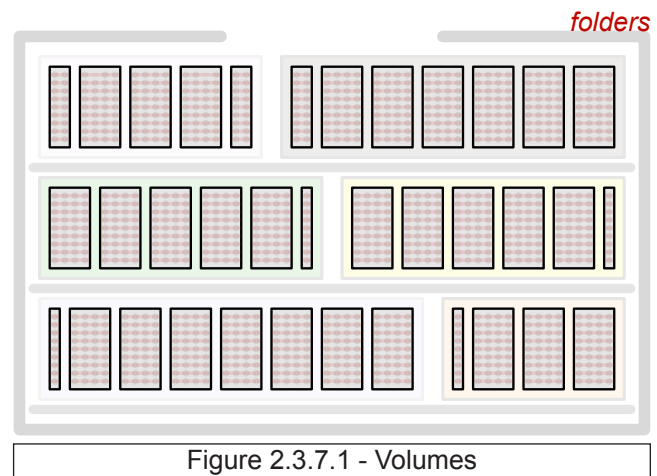
Information

At the root of this intricate and elaborate system lies the most important element of the library and its reason for existence: Information. Information can exist in many formats, be they written word, ideas, photographs, emotions, music, video as well as many others. The exchange of information is the reason humanity first learned to speak and to write. The cumulative collection of our recorded information is something humanity holds sacred and is constantly seeking new ways in which to record and interact with it.

Resources

In addition to the physical elements that divide and organize library structure as well as content, it is only after library resources are factored into the equation that the working library can begin to fully function and breathe.

Library personnel, private study spaces, meeting spaces, workrooms, large mixed spaces, media stations, computer terminals, and of course library content (both physical and digital) are all necessary factors for a functional library to exist.
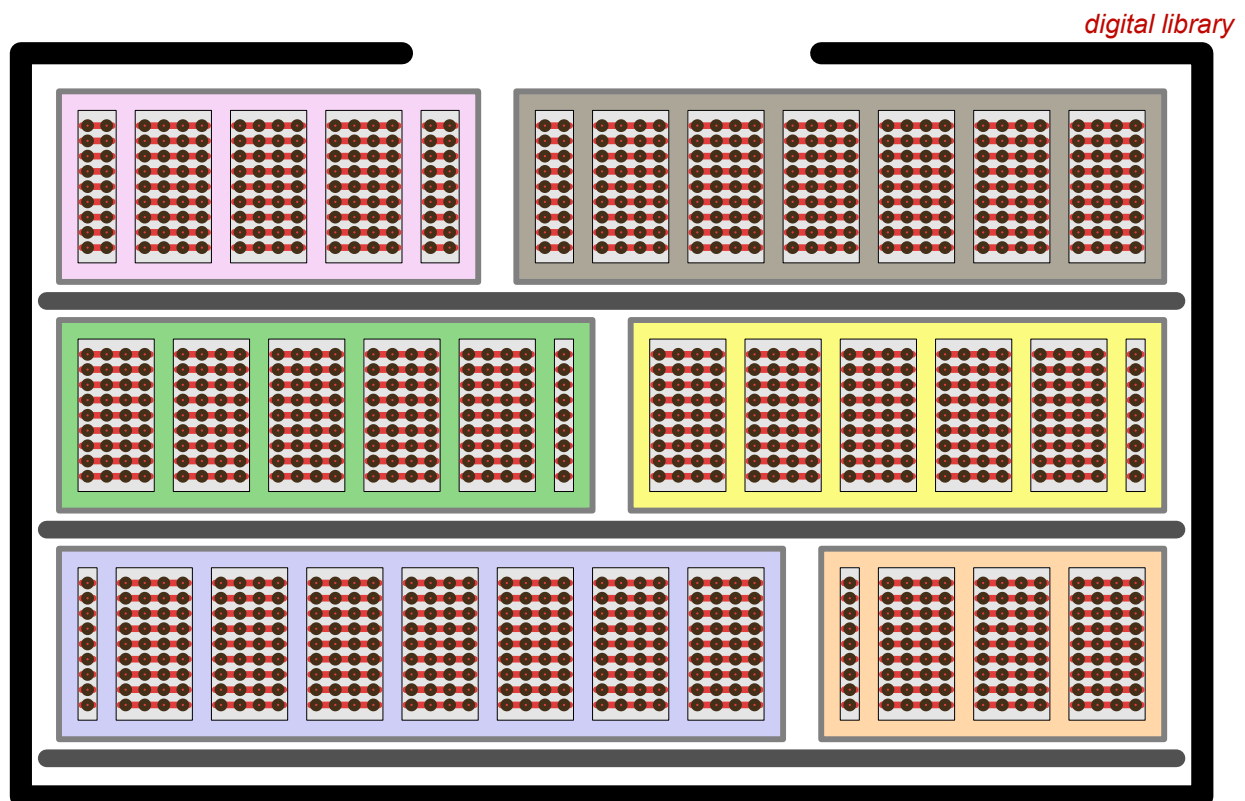

Figure 2.3.7.4 - Library System (Assembled)

3 The Importance of Libraries in Our Society

3.1 . Functions

The origin of the word library comes from the Latin 'Librarium' which translates into 'a chest for books' (Harper, 2001). Books themselves have not always been in the format in which we are accustomed to seeing them today. The word 'book' originates from the word for beech, a common type of bark into which ancient runes were carved (Harper). If the current format of books is a historical translation of the word from a time when modern technology was the pen and paper and later the printing press, should it not stand to reason that digital pages and files are today's translation of the same thing? The evolution of communication and information exchange has been accelerated by the arrival of computers and digital networks. Very quickly, the bound document has become the PDF (Portable Document Format) and can be accessed globally from anywhere through the convenience of an Internet connection.

However, these new digital formats do not fully account for, nor can they accurately simulate the physical attractiveness of the bound document (yet). It is important not to get too carried away by the digital revolution by losing sight of the library's primary goal of exchanging information. The exchange process differs from individual to individual and though some might prefer reading text on a computer screen, others may not absorb the information as well in this format and would prefer to choose what works best for them. Alternative formats may include the printed page, audio, video, touch formats such as braille, followed by other options still to come in this digital revolution. If this is indeed the case, then our contemporary 'chest of books' (the Library) should also be considered in ways that best support access to its entire collection of 'books' (information) incorporating the meaning of the term across all eras. For this reason, there is a secure physical place for the future of the library. However in form and function it stands to be transformed significantly in the future.

Libraries are containers for the information of mankind. However, the function of libraries has shifted from their initial role as a storage container towards that of an environment which not only makes knowledge readily available, but also encourages knowledge exchange and reflection. Though it is becoming increasingly possible for users to obtain vast amounts of information beyond the library's walls via digital connectivity, the role of a library as an architectural entity remains relevant to contemporary society. The library is a cultural symbol

within its community. It is a dense nucleus of information meant to attract and inspire the quest for knowledge within its patrons.

3.1.1 . A Place for Study

The library provides a location where individuals can sustain their regular needs for social interaction while also creating a fertile environment to grow their interests at whatever rate they are comfortable with. Thus another role of the library can be seen as the passive presentation of information for the consumption of its patrons. Today's library patron can use the library as a place to study an infinite number of subjects by way of books, electronic resources, and interaction with others.

3.1.2 . A Place for Community

The concept of community means two things when considering a library. The first and most obvious meaning of the word refers to a specific community in which it is situated. This concept of community refers to physical neighborhood as well as the prospective patrons who find themselves in proximity to a library. The second meaning of the word community in the sense of the library, comes from the community created within the walls of the library itself. Whether it be staff, patrons, clubs, or whatever type of meetings that may occur at any given time within the library, they all contribute to the creation of the library as a place. The concept of a library as a place is one that has been explored on many levels. In essence the library should transform and change to reflect the community which inhabits it. This is why libraries are rarely congruent with the classic stereo type of a 'shhhhh' environment, but today are rather lively and vibrant environments that reflect the current society's multi-media culture.

This second definition of community in terms of library is especially important to the library's continuing relevance. A library provides opportunities of interconnectivity between social interaction and scholarly exploration, and blurs the exclusivity of one or the other.

The library means many things to many people, and sometimes many things to the same person depending on their need for it at any given moment. For example, for some the library is a quiet place to study or read. For others it is a meeting place or a place to hang out and read the newest periodicals. For some it is their only connection to the digital world and is the primary Internet access point for many in the library's physical community. This last example is one that has increased due to the needs of our current culture to stay 'connected.' Whether it be through applications such as E-mail, Facebook, etc., many people only see the library in their community

as a place to plug in to the global world.

As libraries shift their primary focus away from books, it becomes increasingly apparent that these shrines to knowledge are less important as houses for various types of information media, but are better suited as a place for people that is rich with information types as well as community interaction.

4 The Relevance of Books

In a poem, Ted Hughes states that the burning of the great library of ancient Alexandria in 4000 BC 'brain-damaged the human race' (Oxford Dictionary of Quotations, 1999).

4.1 . The Importance of Books in Contemporary Society

When referring to written works, digital representations are no more than assigned ASCII (American Standard Code for Information Interchange) characters represented in variable fonts, sizes and colors, depending on the desire of the reader. The value of these digital texts lies solely in the ideas behind the assembly of characters on a screen. Craftsmanship can only be observed in the skill the author has shown when assembling his words as he reveals his concepts behind them. This format has lost its possessable value as an object. It has been reduced to a file name among many other such filenames written to a database in an encrypted language of ones and zeros. Though in this format great virtual accessibility is gained, it has lost its physical body and with it the concept of pride of ownership. Lack of physical space is less of an issue to some than it may be to others. However there are still many collectors of old and new books in this digital age. The reason behind this is not pure nostalgia, but is more closely related to user experience. Additional information may be great for handling and integrating many types of mixed media, but when it comes to reading texts, digital media primarily emulates the appearance of print on page. In fact many readers prefer to create hardcopies of their digital texts in order to improve their reader experience.

However a book is still even more than just printed words on a page. It is also the paper quality and format the publisher has chosen. It is also the fixed font and quality of ink the publisher has chosen. It is also the materiality and the craftsmanship that has gone into the assembly and binding of a book which in addition to the value of its content makes it an item many individuals would like to possess and find a place for in their homes and in their lives. The emergence of digital media has not marked the traditional book for extinction because it cannot replace the book. However, in this period of transition society is still unclear as to how these two media giants can and will coexist.

Figure 4.2.0 - Library index card system prior to digitization of task.

4.2 . Digital vs. Print

When navigating today's libraries, a number of techniques have shifted since the arrival of computers. In the past, there were standardized methods of indexing each library's holdings. For example, libraries were catalogued using a single system that recorded each item on an index card and arranged these cards in drawers according to a numerical (or alphanumerical) system such as the Dewey Decimal System.

It is important to recognize the benefits of digital media within the global information collective. In many ways these digital media could be considered superior for their rapid indexing and searchability characteristics. Not only can paragraphs be quickly searched for keywords and phrases, but so can entire documents, databases, and digital libraries. Common search engines such as Google and Yahoo can even index specified strings of words across private and public websites, global newspapers, or even digitized scans of ancient texts.

While on many levels this is a fantastic tool, there are schools of thought that are beginning to foresee the dangers of total dependency on digital media. One common concern of exclusive digital interaction is that it is too efficient in its ability of extracting desired information. There is much to be said for the path of discovery. When the ability to extract specific facts becomes automated, it has the potential to exclude the reasoning and justification leading up to those facts. In everyday life there are many occurrences where this is just fine, however, what the long-term effects of such a practice may be are only beginning to be discovered.

Another drawback of digital media is the potential for rapid degradation and the lack of permanence. As alluded to earlier, digital media can be altered or even deleted more easily than a phyical archive of a text on paper. This brings up the question of whether total dependency upon digital media puts us at risk for a new "dark age" similar to that seen with the loss of the Alexandrian Library.

While digital media presents several advantages, its current drawbacks and limitations preclude the total replacement of the printed document by the digital form.

> *"...even if some student will occasionally escape from her desk to wander to a wireless-less spot with her Sony© reader, taking in the individually selected, uploaded and managed "content," I doubt she will ever be able to rediscover the unique pleasure that comes with the discovery of a dusty, somewhat tatty book in a musty corner of a real-life library that, despite its earlier history, appears to have been written, printed, bound, bought, registered, stamped, shelved and preserved just for her."*
> *-An excerpt from the chapter entitled 'The Universal Library' by Robert Jan van Pelt. (Hastings, 22).*

4.3 . Implications for Libraries

In today's world of massive information exchange and accessibility, the amount of research done online rivals the amount of research done in a traditional library setting. As technologies and information formats continue to evolve, personal computers with an internet connection can index more information on any given topic in less time than it takes for the average patron to travel to the nearest physical library. This poses the question of how relevant conventional libraries actually are in today's electronic data driven world.

When it comes to purely processing data and indexing times, traditional libraries cannot compete. However, this is not the only function of the library. Libraries attempt to find scholarly order to the data catalogued within them. Libraries offer environments where people go specifically to work, meet with colleagues, or even to read casually. Libraries offer amenities to the communities in which they reside that cannot be found in every household; in modern times, libraries are a primary source of free computer access and, for many, their only gateway to the Internet.

Figure 4.3.1 - Avatar Machine

The traditional 20th century library attempting to function efficiently under today's technological circumstances is an unnatural endeavor. This concept is flawed due

to the fact that it can only attempt to bridge its ties to past functionality with technology that is alien to its original organization. Very rarely does this type of model succeed because the required programmatic flexibility was never designed into it. Computer technology has advanced so far that it can no longer be superimposed upon the traditional library model. The salvation of the concept of a community library can only be secured by reevaluating the needs of that community and aligning resources that accurately reflect those needs.

An example of how traditionally modeled libraries are beginning to fall apart can be seen when examining the Ryerson University Library. In this example, the library has physically outgrown the amount of students in its community. With such an intense student population increase one would expect the amount of material physically checked out of the library would directly increase as well. This is not the case at all. The reason for this is most likely the fact that an increased amount of research is being conducted online rather than within the library itself. What is actually suffering in this library model is the amount of library holdings due to the increased amount of students needing places to work and meet with each other. This library is due for an extension to its size as well as a reevaluation of its program and functional needs that reflect the current community it serves.

4.3.1 . New Library Design

A library is a physical environment that reflects the information needs of its community (both externally and internally). Its program needs to be flexible enough to shift as fluidly as technology and trends do in order for it to remain relevant. Because a library is a reflection of its community, its content as well as accessibility to content should also reflect the community as well as be driven by it. Giuliano (1979) states that the transformation of libraries must involve establishing a new purpose, meaning and relevance. Lancaster recommended that rather than allowing themselves to be victims of the changing field of information technology, librarians should take charge of the situation and lead into the future (cited in Sapp, 2002).

4.3.2 . Existing Library Configurations

A common dilemma for many communities already possessing libraries is how to convert these existing spaces into environments that can engage and interact with new media types while also

maintaining their role as a house for existing print media collections.

Depending on the size of the building and on the size of that building's existing print media collection, many options are available for these library types. Given the assumption that the building envelope is fixed, then the programmatic redesign for this library can fall on any point along a fixed spatial spectrum. At one end of the spectrum would be a library that has abandoned print media entirely, freeing up its floor area to digital and interactive environments. While at the other end of the spectrum, is a library that does not want to give up any of its print collections and must therefore abandon adopting digital media formats on a large scale. The most common solution among libraries is to reduce their print holdings marginally to allow small-scale digital zones to occur throughout the library. Many libraries have often opted to expand their envelope when possible. The ideal solution is mostly dependent on the individual needs and characteristics of the specific communities in which these libraries are located and has little to do with any kind of standardized formula that can be blanketed across all situations.

5 Case Studies

5.1 . La Grande Bibliothèque (2004)

Montreal, Canada - Patkau/Croft-Pelletier/Menkés Shooner Dagenais Architectes.

(350,000ft^2)

In their own words, Patkau Architects describe the project on their website:

The Bibliothèque Nationale du Québec is a 350 000 sq ft central library for the province of Québec. Located in the Latin Quarter of Montréal, the building consists of general collections, an historic Québec collection, and a variety of public spaces including a lecture theatre, café, gallery, garden, and booksellers.

The collections are housed within two large wooden rooms, each with different characters. The Québec collection is conceived as a grand room, inwardly focused, with the stacks at the perimeter and reading areas within. The general collection is conceived as a storage container for the various materials of the

Figure 5.1.1 - La Grande Bibliotheque

collection with reading areas outside its boundaries. Connecting the collections is an architectural promenade that begins at the entrance of the library, and weaves upward through the collections to a public reading room. Complementing the architectural promenade is a conventional circulation system with elevators and stairs that allows for efficient access to the library.

The wooden rooms are housed within a glass and copper-clad building. Between the wooden rooms and exterior skin are rich and complex spaces that reflect the diversity of the program, through a variety of light conditions, scales of spaces, and unexpected adjacencies.

The public spaces of the library are arranged in a topographic manner below the collections, so that the public spaces of the library support and activate the public spaces of the city.

5.1.1 . Implications and Contributions

There are many interesting approaches used by

Patkau Architects to create a library space which

can function well as a storehouse for printed media

Figure 5.1.2 - Interior circulation ligaments.

while at the same time being inclusive and anticipatory of emerging digital media. In many ways this building acts as a scholarly community center with many tiers of seating space as well as a broad spectrum of quiet study to medium-sized interactive space. The central core acts as the primary network for navigating the building while at almost every turn providing its patrons with diverse branches of information content spanning many media types. Within the building envelope, but securely seperated, are the national archives which stores and protects important texts from both Canadian and Québecois history. This space is reminiscent of a vault designed to protect not only the books themselves, but also the importance of these printed treasures.

La Grande Bibliotheque is an extremely exciting glimpse into what 21st century libraries should aspire to be. It was designed with an apparent sensitivity and respect for all media types. It does not push too hard to be cutting edge digitally nor does it in any way resemble a cold

Figure 5.2.0 - Seattle Public Library

monument to the printed word. What it does accomplish well is a sense of intrigue and the magnetism of exploration providing its community with a warm and engaging afternoon in the library.

5.2 . Seattle Public Library (2004)

Seattle, Washington, USA - The Office for Metropolitan Architecture (OMA).

(412,000ft^2)

In their own words, OMA describes the project on their website:

> The Library seems threatened, a fortification ready to be `taken` by potential enemies. Its insistence on one kind of literacy has blinded it to other emerging forms that increasingly dominate our culture, especially the huge efficiencies (and pleasures) of visual intelligence. New libraries don`t reinvent or even modernize the traditional institution; they merely package it in a new way.
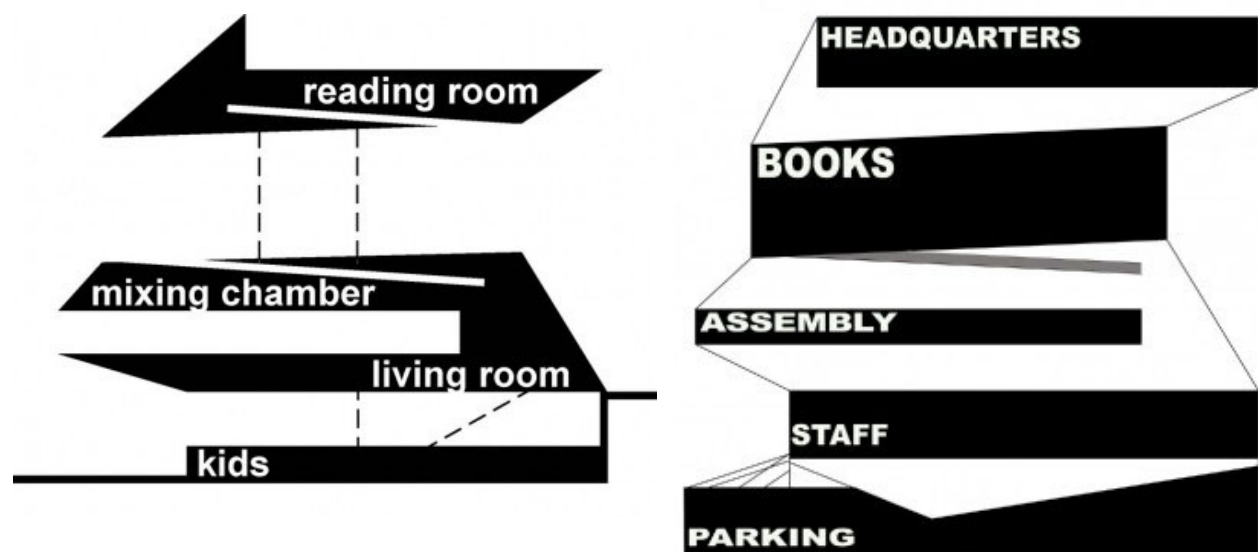
Figure 5.2.1 - Function schematic for the Seattle Public Library. (OMA).

> Unless the Library transforms itself wholeheartedly to aggressively orchestrate the coexistence of all available technologies to collect, condense, distribute, read and manipulate information, its unquestioned loyalty to the book will undermine the Library`s plausibility at the moment of its potential apotheosis.

> New Seattle Public Library
> The ambition is to redefine and reinvent the Library as an institution no longer exclusively dedicated to the book, but as an information store, where all media - new and old - are presented under a regime of new equalities. In an age where information can be accessed anywhere, it is the simultaneity of all media and the professionalism of their presentation and interaction, that will make the Library new.

> The library is transformed from a space to read into a social center with multiple responsibilities.

5.2.1 . Implications and Contributions

OMA recognizes that over time technology will continue to change as will the way people interact with the library. Their approach to minimizing the risk of their library as a whole becoming out of sync with technology. The library is to divide it into zones by generalizing the type of activity that can occur in those areas (see figure 5.2.1 which maps the general zones that make up the Seattle Public Library). By designing with this systems approach in mind, OMA leaves these smaller zones to function almost entirely independently of each other. A key function that each of the zones would perform is self-maintenance and self-updates. Through the use of this approach the library as a whole will likely never be completely out of date. Its independently acting internal cells ensure this by staying current in each of their respective areas of specialization. This collection of incubated environments are tended to by staff responsible for just those spaces but with sympathetic understanding of the needs for the library as a whole. In this manner, the library's patrons function not only as knowledge consumers but also cross-pollinate these environments with their ideas, needs and personality.

In many ways the Seattle library offers all the fun of a child's treehouse. It is rich with self-awareness which oozes out of its bold accents and lures its patrons from one treasure room to the next. It is also important to note that media typology has no apparent hierarchy. I believe this library is a success on many levels and is an attractive escape for members of its community as well as a tourist destination for travelers in search of a unique library experience.

6 Design Project

6.1 . Design Question

How can an academic library situated within a growing urban university community be redesigned in order to best meet the needs of its community while still retaining rich information content amidst the challenges of emerging digital media?

6.2 . Introduction

Prior to the arrival of digital media, universities had two fundamental methods for dispensing information. The first of which was a dense holding of printed information within which students could search and read through desired information. The second source of information was the actual university campus environment. The campus offers many opportunities for human interaction and becomes a scholarly incubator of learning. The university campus is a key component of university education. Within its boundaries classes are held, study groups are held, labs are held, and discussions are held (both scholarly and casual).
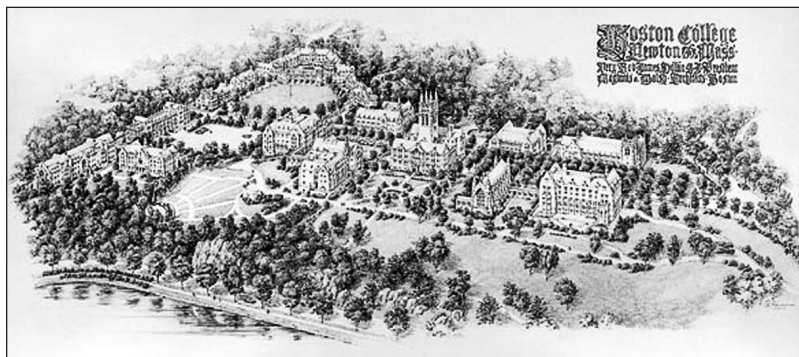
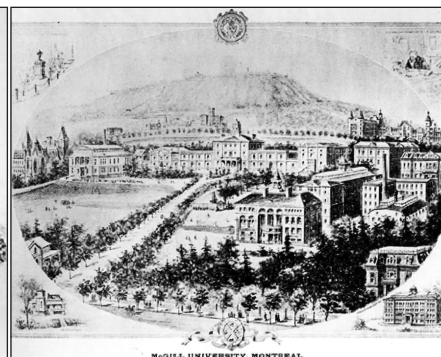| Figure 6.2.1 - Boston College   (Est. 1863) | Figure 6.2.2 - McGill University   (Est. 1821) |

This learning model has seen a very recent shift with the introduction of digital media formats at the end of this past century. This shift has thrown the dynamic balance between print information and human experience off center, while the academic world continues to struggle finding a balance within their institutions for the most ideal and harmonic method of knowledge acquisition. One of the greatest consequences of this shift has fallen on the role of academic libraries which had been designed and built prior to the major influence of digital media formats. These particular libraries have since been over pressurized with the needs of their community for having methods to tap into these new formats. The major problem in this is that the way
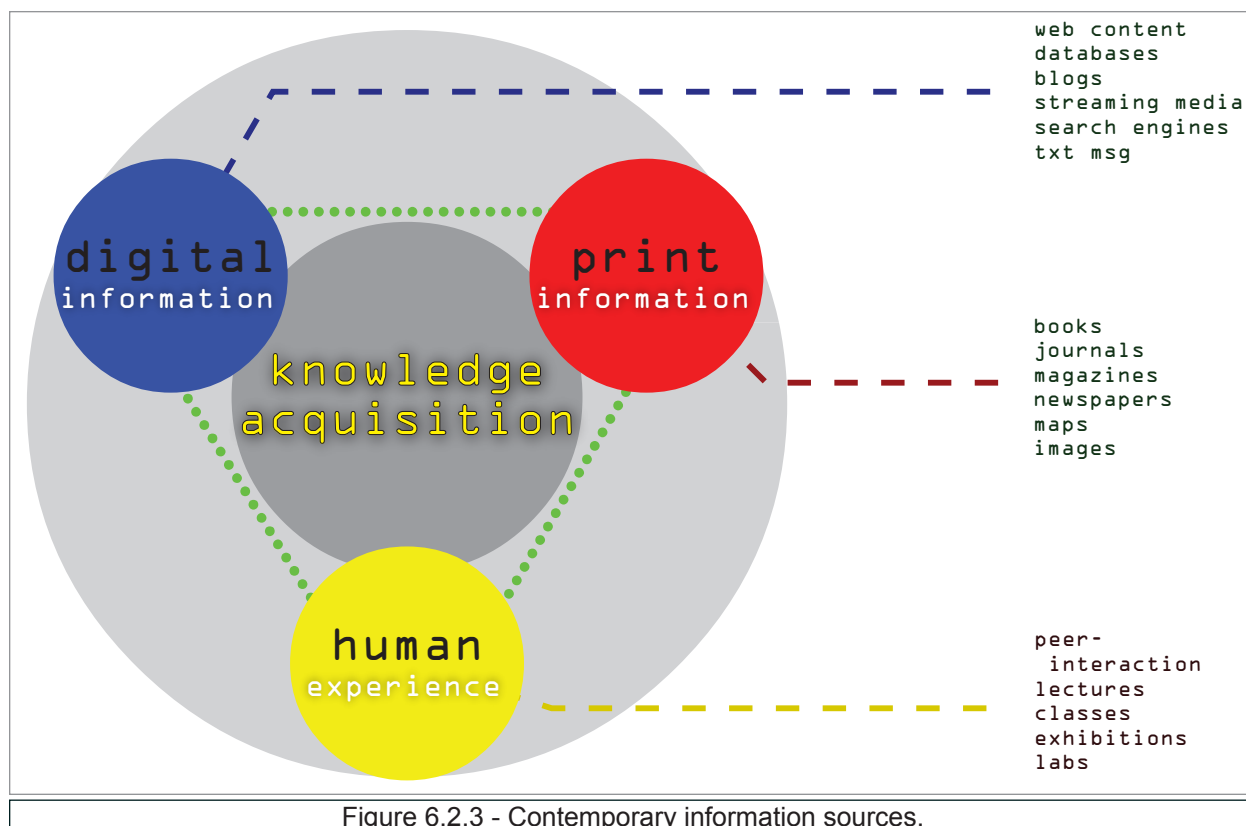
Figure 6.2.3 - Contemporary information sources.

students learn has shifted so much that internal library configurations have attempted to rapidly adjust to cope. Considering most of these libraries have a fixed floor area and building envelope, in order for them to incorporate new digital media interfaces and shifted human experience needs, more traditional elements of these libraries have had to be greatly reduced, primarily their holdings of print information.

6.3 . Project

The most common question I have encountered throughout my research and execution of this project has been 'What does the 21st-century library want and need to be?' This is a very important question and weighs heavily on the future of not only libraries, but also on academic institutions and education as a whole. However, one area that intrigued and puzzled me more was the question of how this should affect the resources and collections of existing institutions. It is one thing to speculate on the future of the need for books over digital representations of them but quite another issue to insist that they are not still a valuable component to an academic institution. I believe that there is still an important place for these so-called relics, but as it stands they seem to be the first thing to go to make room for new computer labs and casual student lounges within the library.

In a survey I composed and administered during the research component of this document, I asked librarians from a variety of global institutions how their libraries are most commonly used today. The top four answers were: 1-As a place with computers and the Internet; 2-For research; 3-For quiet reading and study; and 4-As a meeting place to work with others. What this signifies to me is that there is still a great need for the library to retain its role as a quiet workspace to better facilitate quiet study and research. The trend in library re-programming seems to be moving away from this need as it seems more important for their libraries to be as 'flexible' as possible.

Library Usage

- A Place with Computers and the Internet
- For Quiet Reading / Study
- As a Meeting Place to Work with Others
- For Research
- As a Hangout
- OTHER

26%, 2%, 9%, 21%, 22%, 20%

Participating Institution Types

- Academic
- Public
- Government
- Botanical Garden (Non-Profit)
- Special/Museum/Research
- Corporate

5%, 5%, 4%, 9%, 18%, 59%
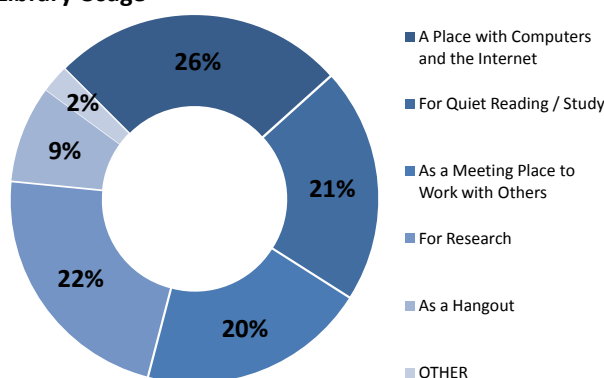
Table 6.2.4 - Library usage reported by Librarians.	Table 6.2.5 - Participating Institutions in survey.
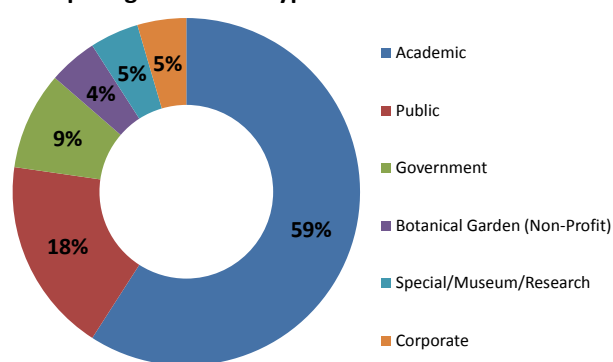
I am in agreement with the concept that a well-balanced academic experience should include access to all three knowledge acquisition sources (i.e. print information, digital information, and human experience). However, I do not believe it is possible to create this harmonious balance of all three source elements within the existing walls of a library designed to balance two and still be able to sustain the same volume of community patrons. Quite simply, new information (regardless of the format type) cannot be added to a full container without displacement. Therefore I believe that by planning around and orchestrating this inevitable displacement into a new information exchange archetype, existing libraries can continue to function ideally with only moderate programmatic adjustment. This design project explores the Ryerson University Library and proposes a solution to the challenges it is facing balancing new digital information types and a rapidly growing student population within an outdated building envelope.

The goal of this design project is to create an environment dense with information and conducive to university community interaction by reinstating the library's role as a chest of

books and displacing and reformatting the additional programmatic elements and functionality it has taken on since it was originally opened. The result is the creation of a new building that taps into the existing 'chest of books,' but primarily functions independently as a nucleus focused on the exchange of information within the Ryerson University campus.

Figure 6.3.1 - View of 'Sam the Recordman' looking south along Yonge St.

6.3.1 . Site

The site chosen for this design project is Ryerson University Library in Toronto, Canada. Ryerson University is an urban campus that has been in steady growth since its establishment in 1948 as an Institute of Technology. By 1971, Ryerson became an accredited university degree granting institution. Within the past decade Ryerson has seen an explosion of growth sparked by the change of its name to Ryerson University in 2001.

Figure 6.3.1.0 - Interior view of Ryerson Library.

Within the city of Toronto there are three accredited universities. Of these three, Ryerson has the smallest campus footprint of only 12 hectares for a student population of 25,000 full-time students (both Graduate and Undergraduate) and an additional 65,000 part-time and Continuing Education students. (source: Ryerson University website). This condition has created a unique university environment with the tendency to expand vertically. However this limited physical campus forces most of the normal campus interaction indoors which greatly limits the

cross-pollination of information between department buildings.

The recent growth of Ryerson has also raised its profile and has thus made it more in demand than ever with potential students. Due to the increase of student applications to this particular institution in comparison to the other universities across the province of Ontario, provincial funding has also increased for the university's development. Thanks to this Ryerson is slowly trying to expand its footprint with adjacent property acquisitions and new building projects. One such property acquisition is located directly adjacent to the original Ryerson Library across a service alleyway. It is a parcel of many narrower properties whose addresses are 341 - 353 Yonge Street. The overall site area available for this project is 2100 m². The previous occupants of these sites were 'Sam the Recordman' and 'Futureshop' retail locations which have since been demolished. This is an extremely important acquisition for Ryerson primarily because the university has existed, until now, as an all but hidden entity. This parcel of properties is located at the intersection of Yonge and Gould Streets, and is only a block away from two of the city's iconic landmarks: The Eaton Centre and Yonge & Dundas Square. Yonge Street itself is one of the city's most famous streets and a university building along it could offer Ryerson a visual signpost signifying its coming-of-age.

6.3.2 . Issues

Based on a review of the literature, interactions with library staff, internet research and the current situation of Ryerson University, I have identified the following issues that this project will address. The first issue is the incompatibility of the size of the current library with the expanding
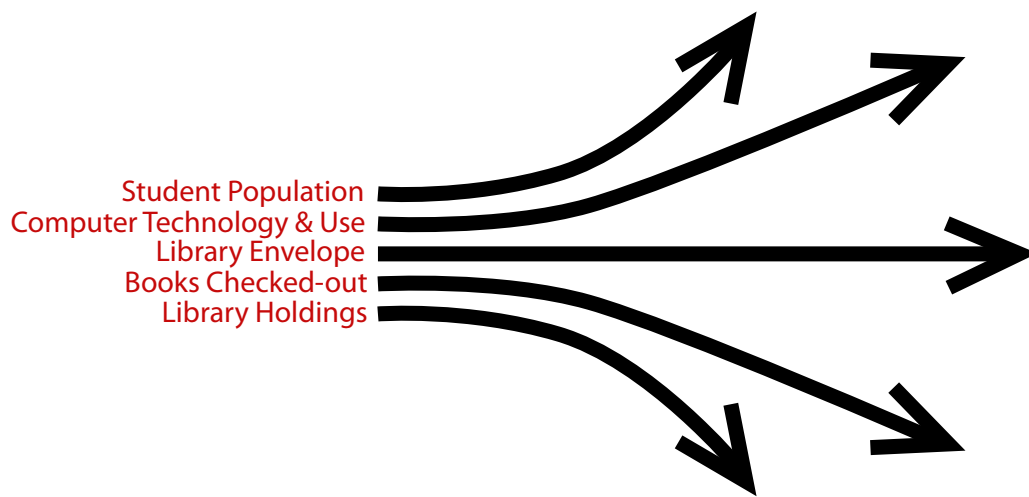

Figure 6.3.2.1 - Trends effecting Ryerson library
since it was built in 1974.

student population at Ryerson University. In order to continue as a progressive leader in the academic world, Ryerson requires holdings and work spaces that better match the size of its student body. Along these lines, a second issue is the loss of space for stacks, and the resulting reduction in print holdings that Ryerson has seen since the introduction of digital media. This loss of print holdings is a direct result of restructuring the library to include more computer and study spaces. A third issue is the inadequacy of existing work spaces for students at Ryerson University. Displacing print holdings by creating these work spaces within the existing library is impractical and dangerous due to the loss of print material it leads to. As a result of the way the campus has sprouted up over the years among existing downtown buildings, Ryerson University lacks the space to provide students with an area in which they can work and share ideas constructively. The fourth issue is also a result of Ryerson's development as a downtown

Program distribution within the current library building.	Proposed program distribution across both buildings.
books — 7532.5 m²	books — 11029.5 m²
staff/admin — 1473.7 m²	staff/admin — 2477.4 m²
aux. Ryerson use — 0 m²	aux. Ryerson use — 5939 m²
mags/periodicals — 1146.2 m²	mags/periodicals — 1866.5 m²
low dB meeting space — 655 m²	low dB meeting space — 2884.6 m²
medium dB meeting space — 1310 m²	medium dB meeting space — 1696.8 m²
high dB meeting space — 327.5 m²	high dB meeting space — 848.4 m²
study space — 1375.5 m²	study space — 3393.7 m²
services — 818.7 m²	services — 1696.8 m²
w/c — 65.5 m²	w/c — 203.6 m²
food service — 0 m²	food service — 33.9 m²
open space — 32.7 m²	open space — 848.4 m²
digital labs — 1637.5 m²	digital labs — 1018.1 m²

Table 6.3.2.1 - Floor area distribution divided into groupings of program elements.

new Information Exchange bldg.		new configuration for Library bldg.
0 m²	books	10643.7 m²
878.1 m²	staff/admin	1572 m²
6146.7 m²	aux. Ryerson use	0 m²
526.9 m²	mags/periodicals	1310 m²
2634.3 m²	low dB meeting space	327.5 m²
1756.2 m²	med. dB meeting space	0 m²
878.1 m²	high dB meeting space	0 m²
2283.1 m²	study space	1146.2 m²
878.1 m²	services	818.7 m²
140.5 m²	w/c	65.5 m²
35.1 m²	food service	0 m²
878.1 m²	open space	0 m²
526.9 m²	digital labs	491.2 m²

Table 6.3.2.2 - Program distribution amongst both buildings (post-intervention).

university. That is, the lack of common spaces and connections between buildings lead to a lack of interaction between departments and to isolation of specific subject areas to single buildings. The university community could benefit greatly from a space in which students and academics from all fields could come to work and exchange knowledge and ideas. It is through this type of interdisciplinary interaction that innovations are often made. These issues shaped the development of the design project that follows.

6.3.3 . Design

The initiating steps that helped to push this design were a deliberate counter-action to the degradation of the original library configuration as the Ryerson Library has been attempting to cope with the changing face of information acquisition as well as the ballooning student population. One of my primary concerns regarding to the trends I have recorded over the lifespan of the library is the expulsion of print resources to make room for additional program within the library. I feel as though the loss of those collections is a major loss to the collective knowledge and overall wealth of the Ryerson University Library. In response to this, I have chosen to reinject the existing library with additional print collections and as a result, displace many the programmatic intruders that have disfigured the original intention for the library. The original intention of the library was to act as a house for the university's print collections and as
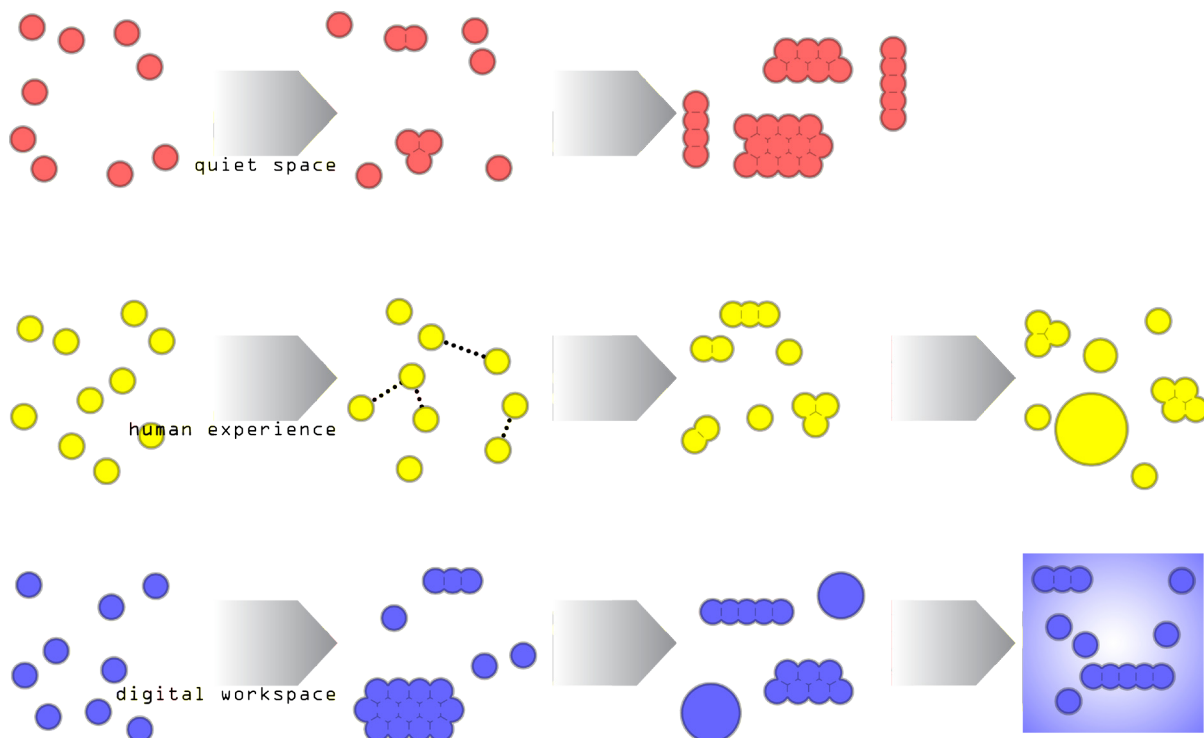
Figure 6.3.3.1 - Grouping strategies for information sources.

intervention

quiet work-space
interactive space
digital work-space
staff areas
inter-connectivity
print collection

legend

existing
library's
degradation
from
original
program

project
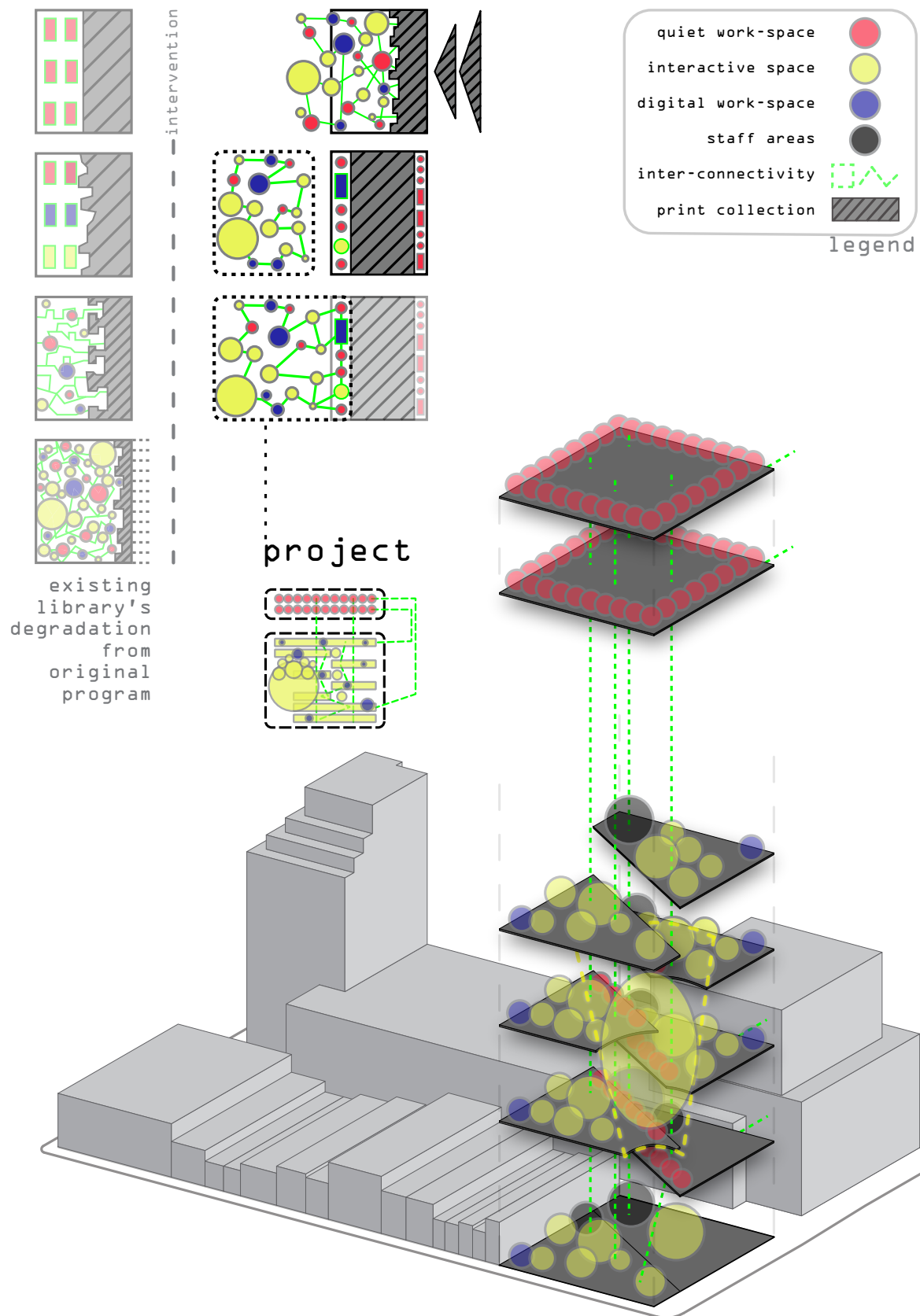
Figure 6.3.3.2 - Program mutations and reorganization.

an environment dedicated to the investigation and interaction with them.

Secondly, I have reformatted and restructured the displaced programmatic elements from the original library building and increased the opportunities for them to occur within a new building envelope that is independent but still connected to the original library. In doing so, I have created a new building type that is intended to act as a campus environment for the university's students and faculty which focuses on and encourages information exchange and knowledge acquisition.
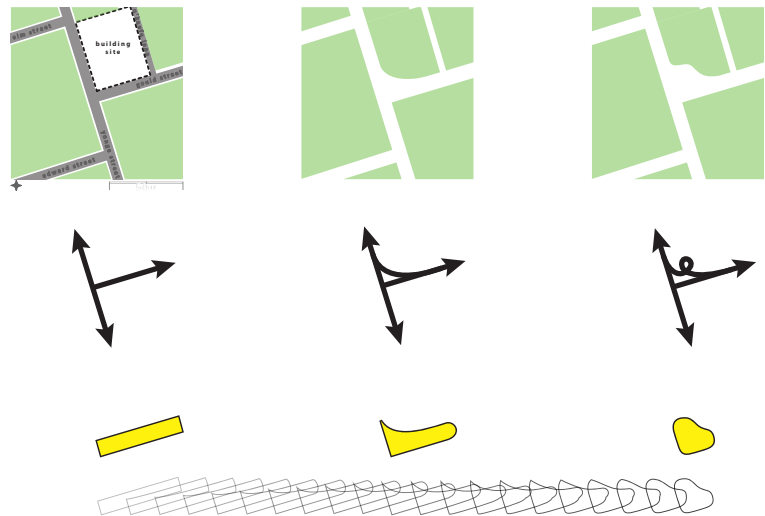
Figure 6.3.3.3 - Shaping the site's footprint to create an additional exterior environment for the university.
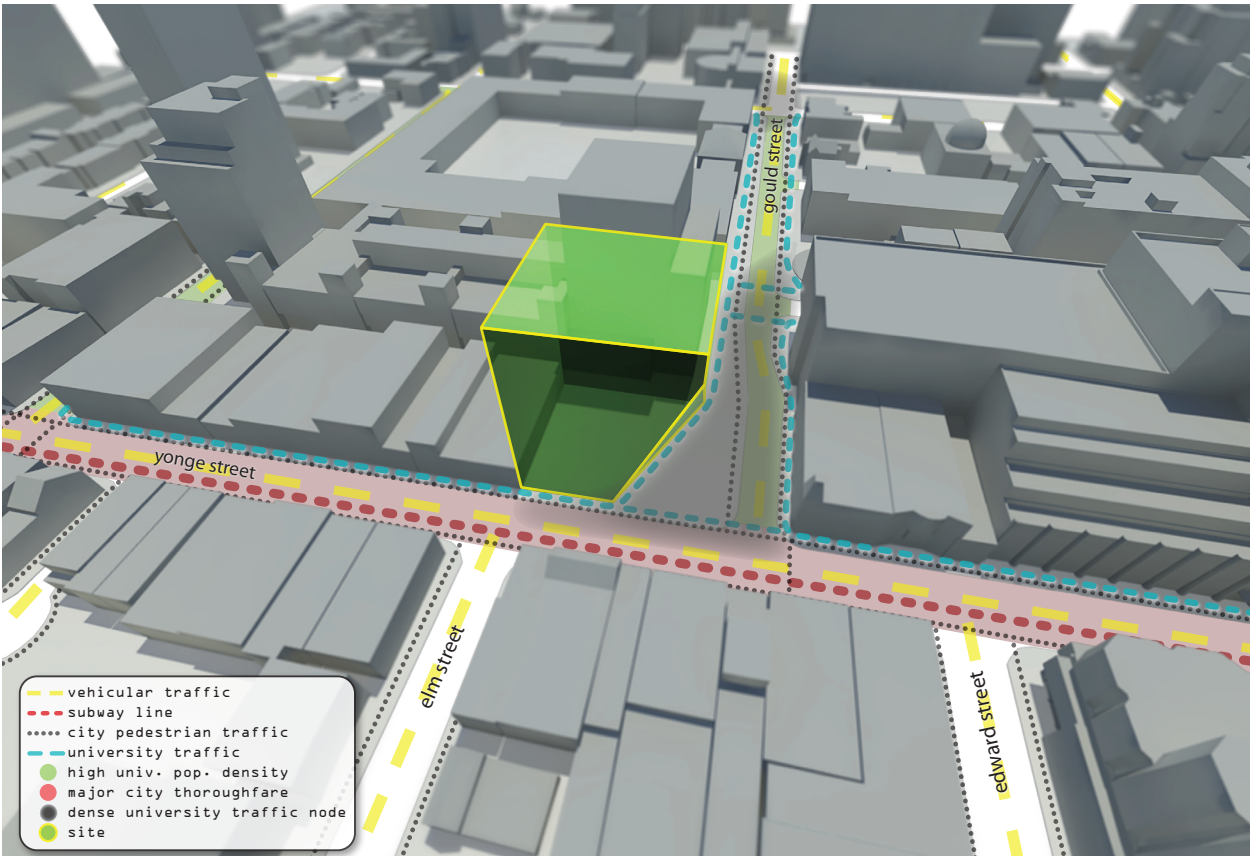
Figure 6.3.3.4 - Surrounding site traffic.

Figure 6.3.3.6 - View looking north on Yonge Street (at Gould St.).

Figure 6.3.3.7 - View of primary entrance at ground level.

Figure 6.3.3.8 - Interior view.
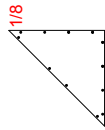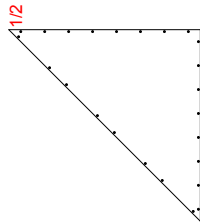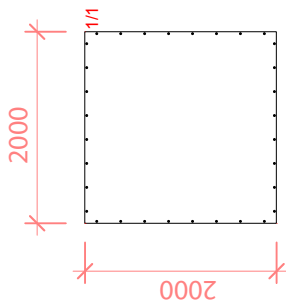
curtain wall subdivision system

if the angle between p_1 and p_2 is greater than 15º

    divide panel diagonally once

if the angle between p_1 and p_{1n} (or p_{1n} and p_2...) is greater than 15º

    add p_{1n} at midpoint along the original spline between p_1 and p_2

    sub-divide at pane centre and centre in other axis direction

    repeat loop check once

end.
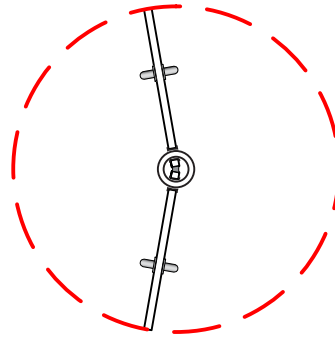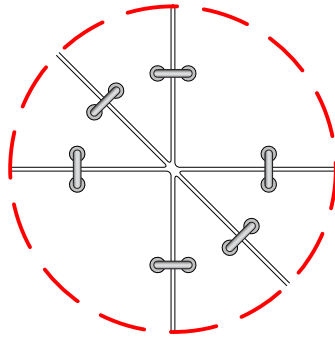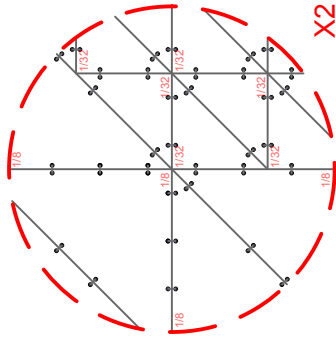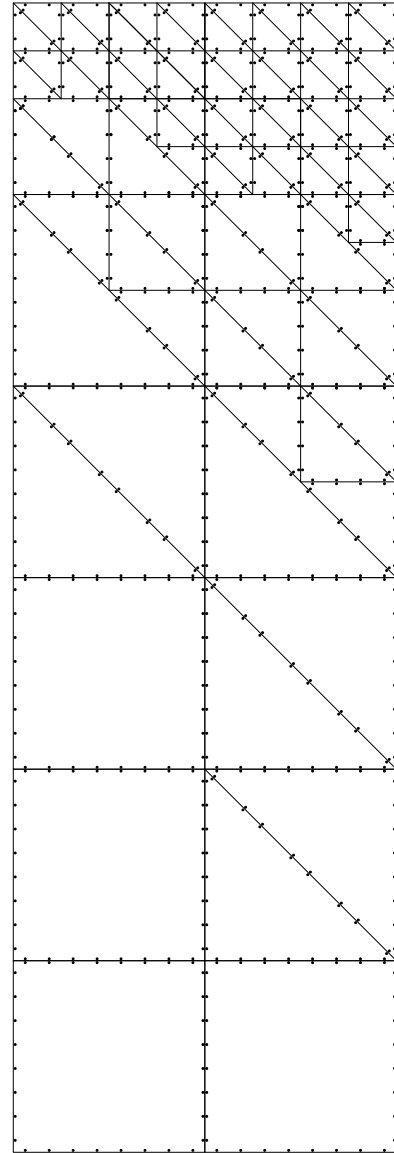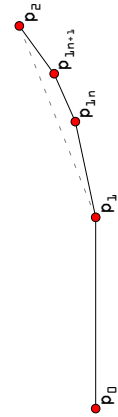
Figure 6.3.3.9 - Glazing Detail

Level LG   scale 1:500

Level 0
+0000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
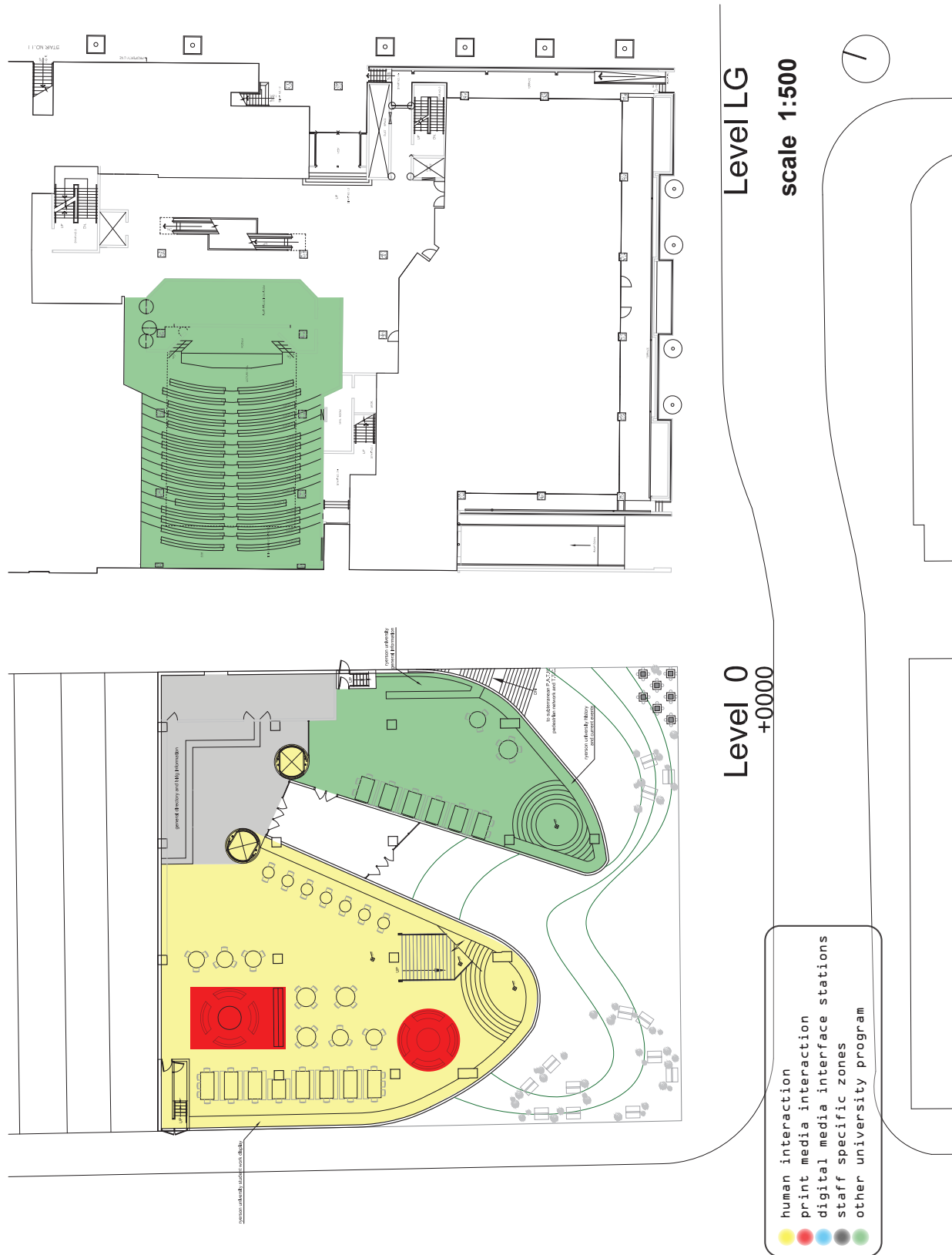
Figure 6.3.3.11 - The Information Exchange: Level 0

44
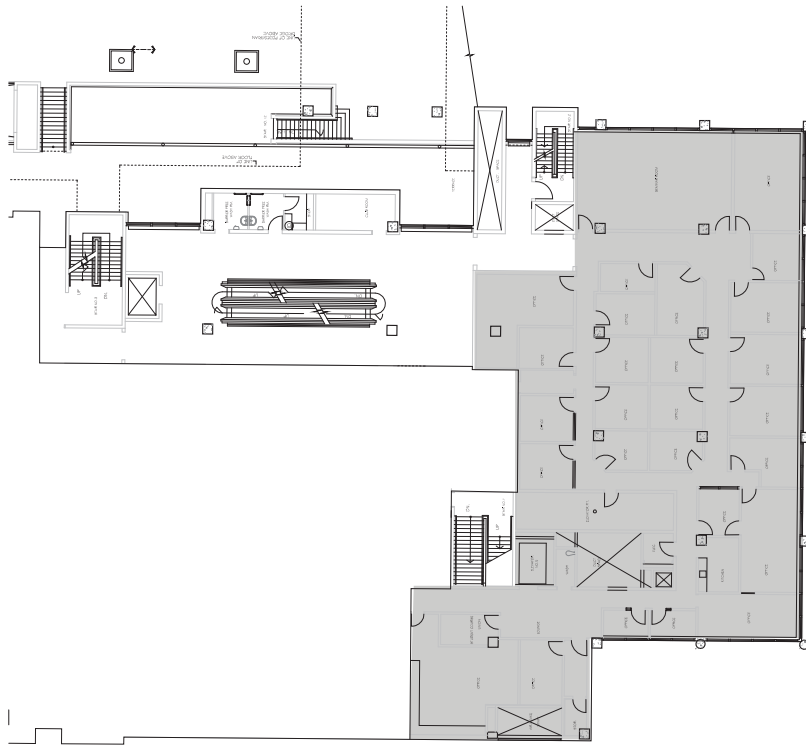
Level G

scale 1:500
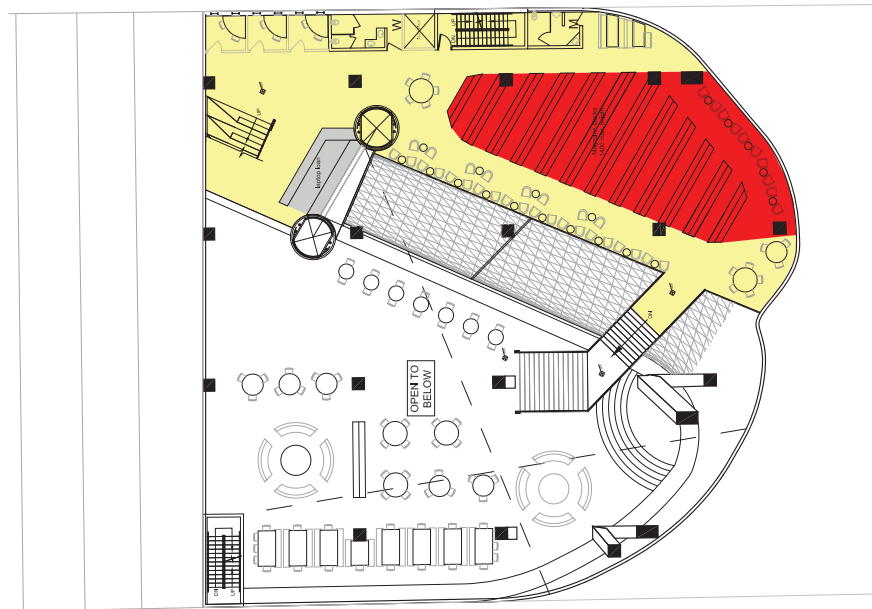
Level 1
+4000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program

Figure 6.3.3.12 - The Information Exchange: Level 1

OPEN TO
BELOW

45

scale 1:500

Level 1.5
+6000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program

Figure 6.3.3.13 - The Information Exchange: Level 1.5

Figure 6.3.3.14 - The Information Exchange: Level 2

Level 2.5
+10000

scale 1:500

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
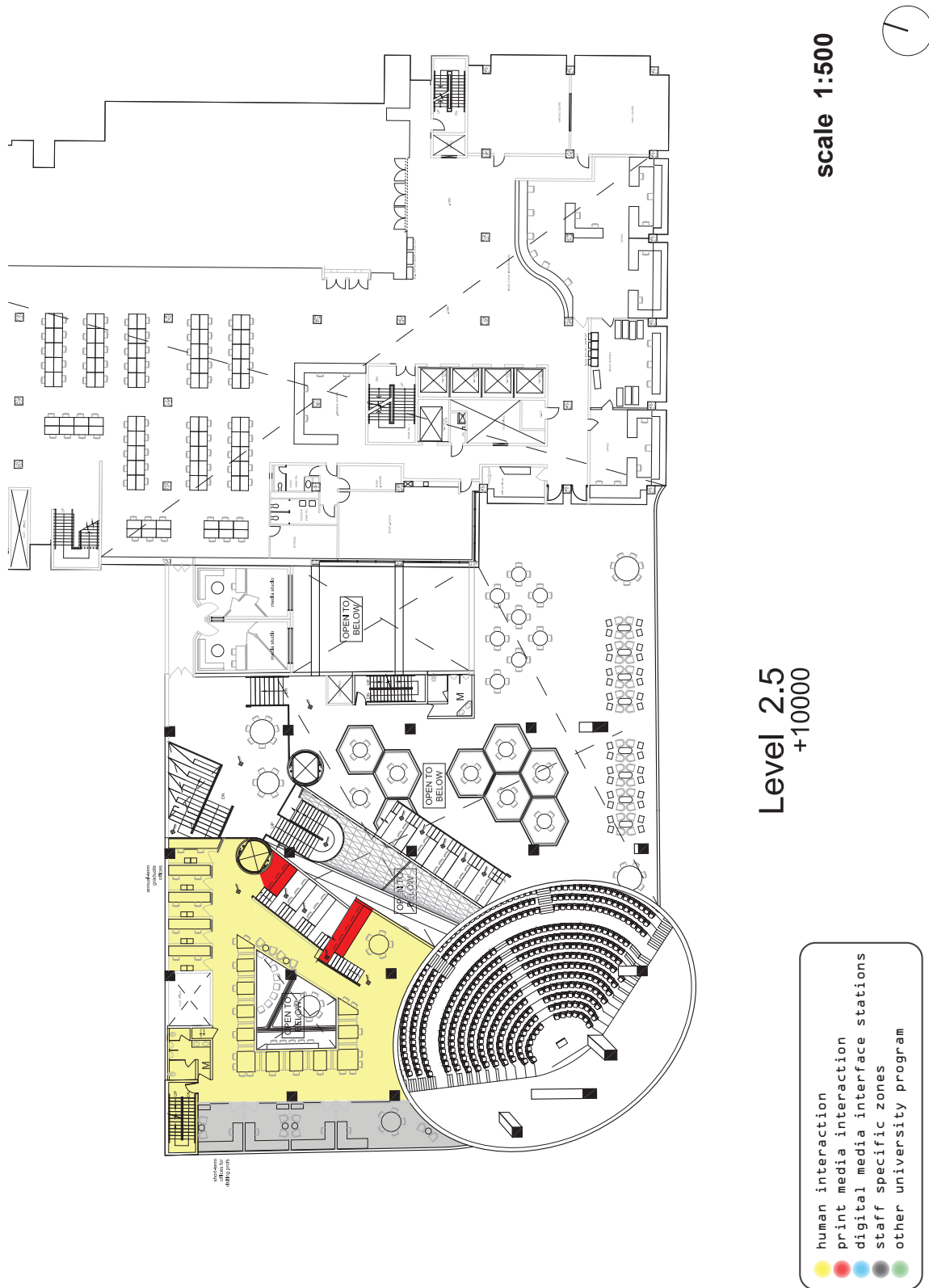
Figure 6.3.3.15 - The Information Exchange: Level 2.5

48

Level 3
scale 1:500

Level 3
+12000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
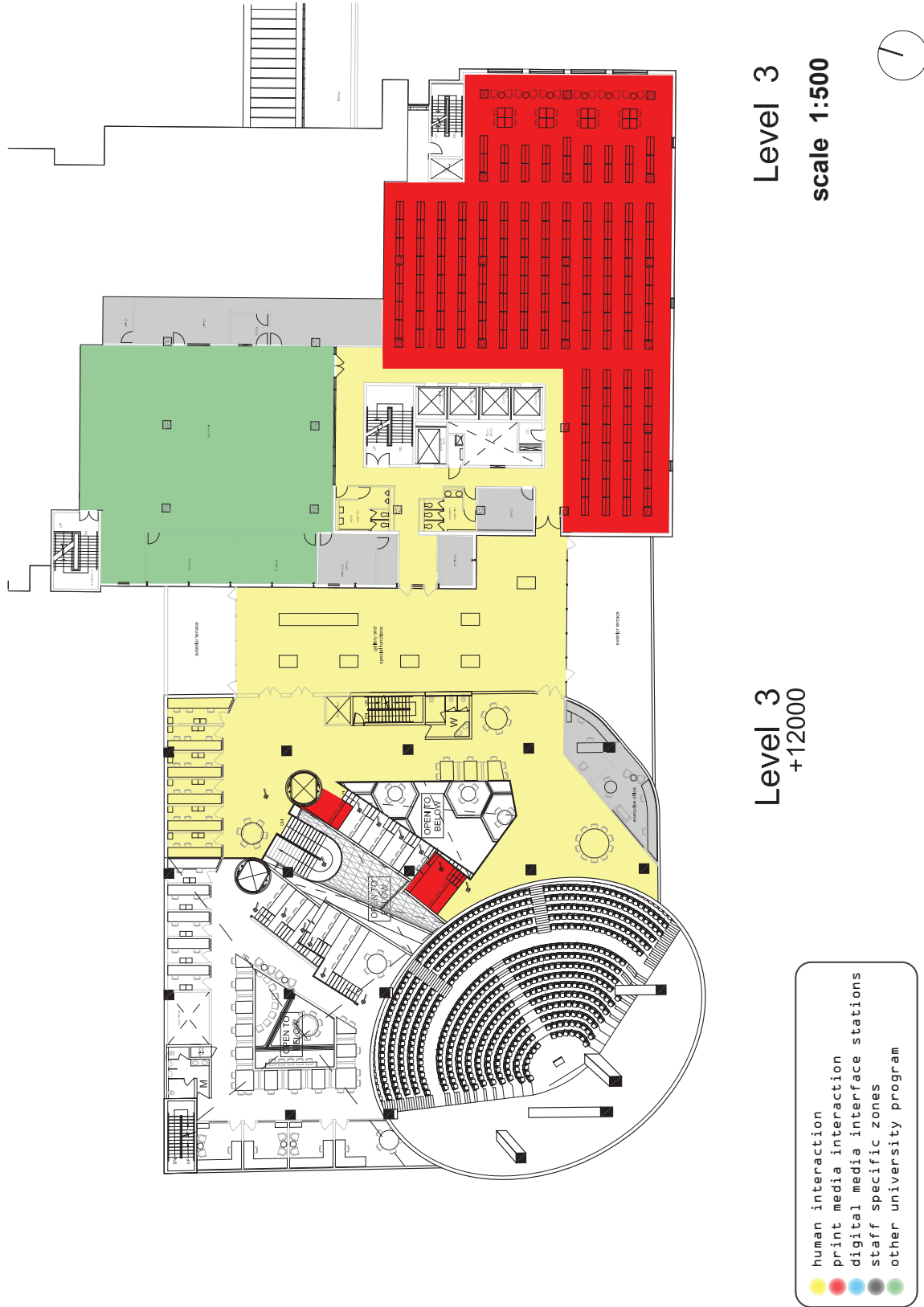
Figure 6.3.3.16 - The Information Exchange: Level 3

49

scale 1:500

Level 3.5
+14000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
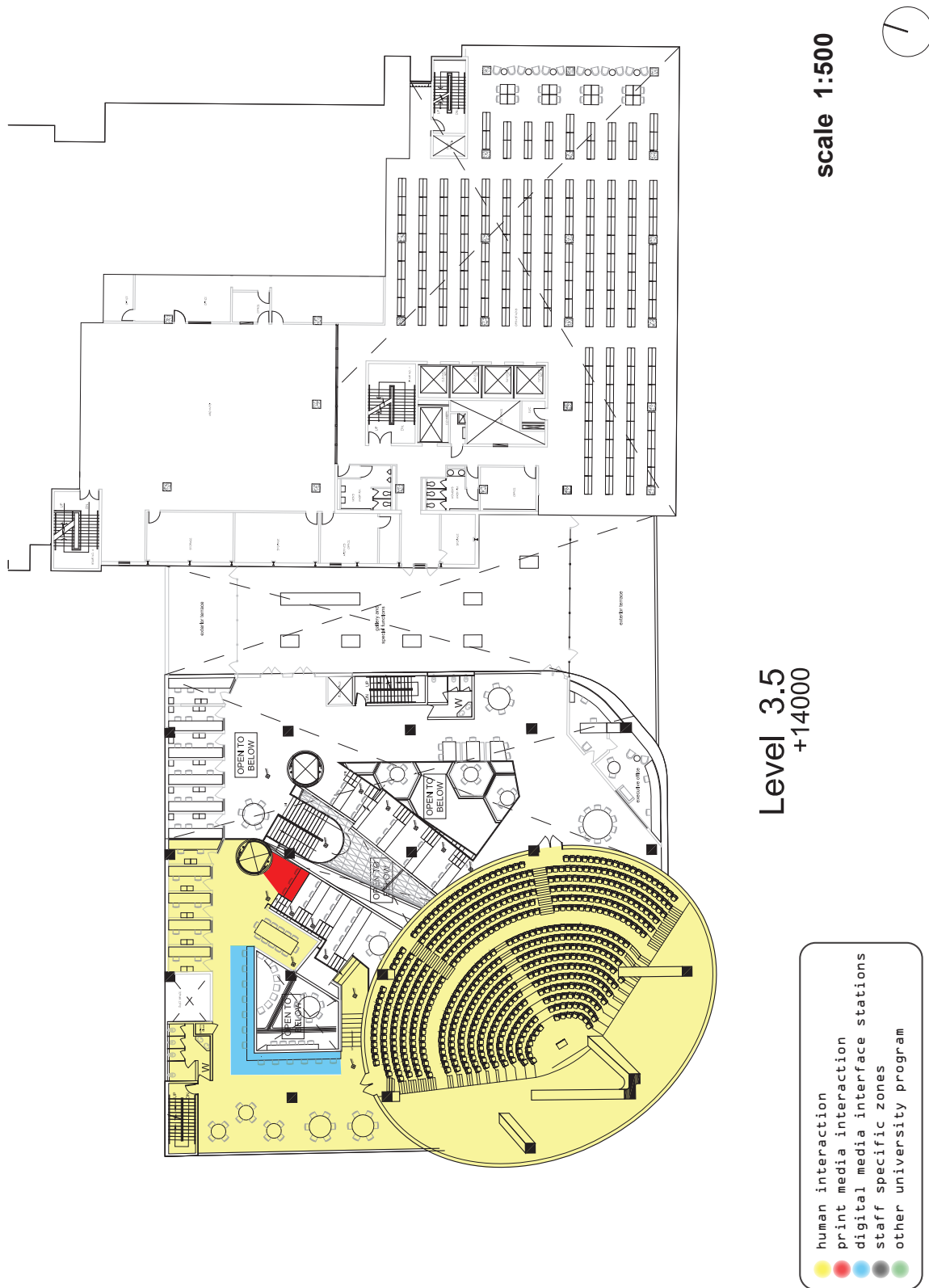
Figure 6.3.3.17 - The Information Exchange: Level 3.5

Level 4

scale 1:500

Level 4
+16000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program

Figure 6.3.3.18 - The Information Exchange: Level 4

Level 5

scale 1:500

Level 5
+20000

university infill
(1644 m² gfa)
(17,696 ft² gfa)

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program

Figure 6.3.3.19 - The Information Exchange: Level 5

Level 6

scale 1:500

Level 6
+24000

university infill

(1654 m² gfa)
(17,804 ft² gfa)

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
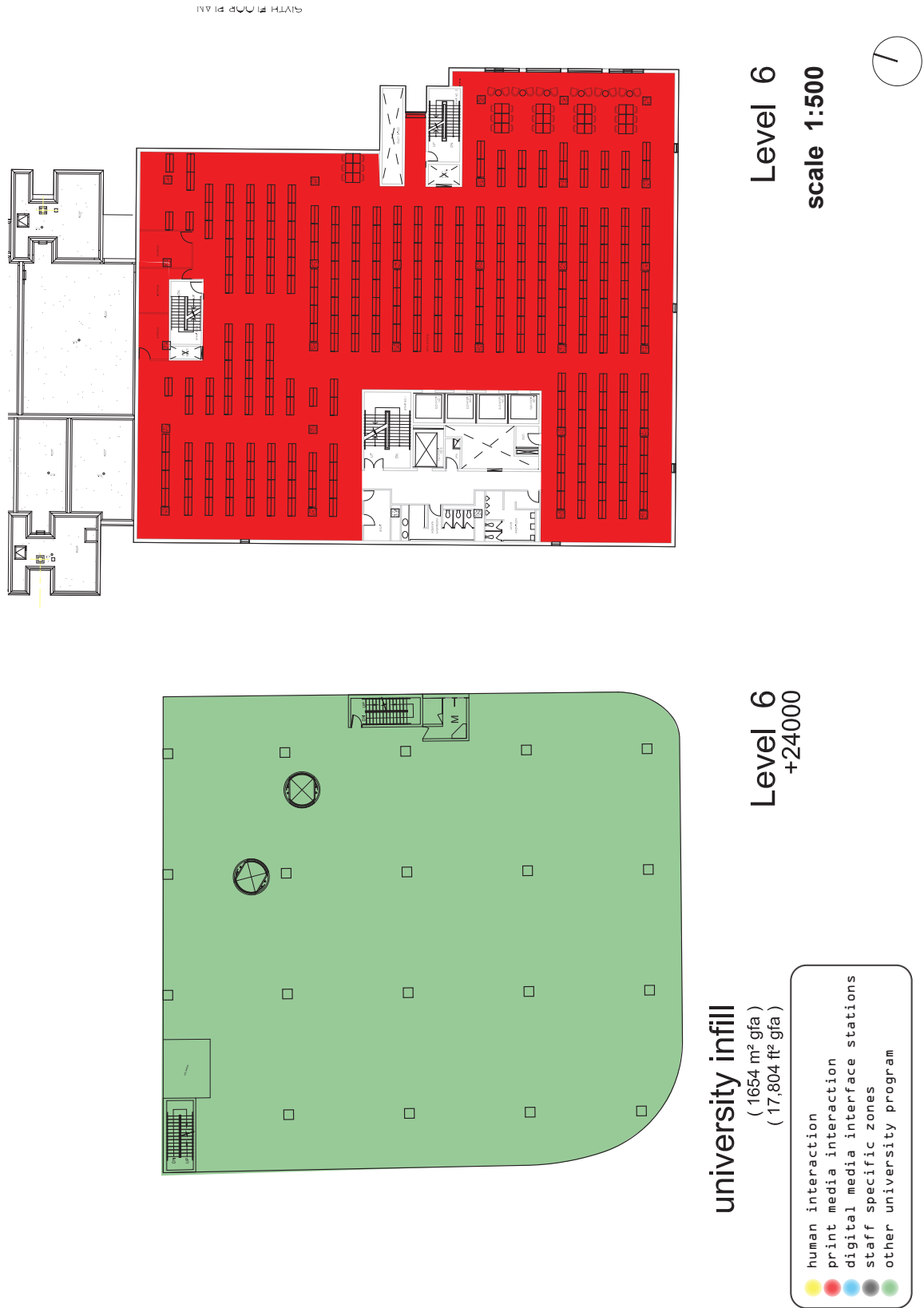
Figure 6.3.3.20 - The Information Exchange: Level 6

Level 7
scale 1:500

Level 7
+28000

university infill
(1686 m² gfa)
(18,148 m² gfa)

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
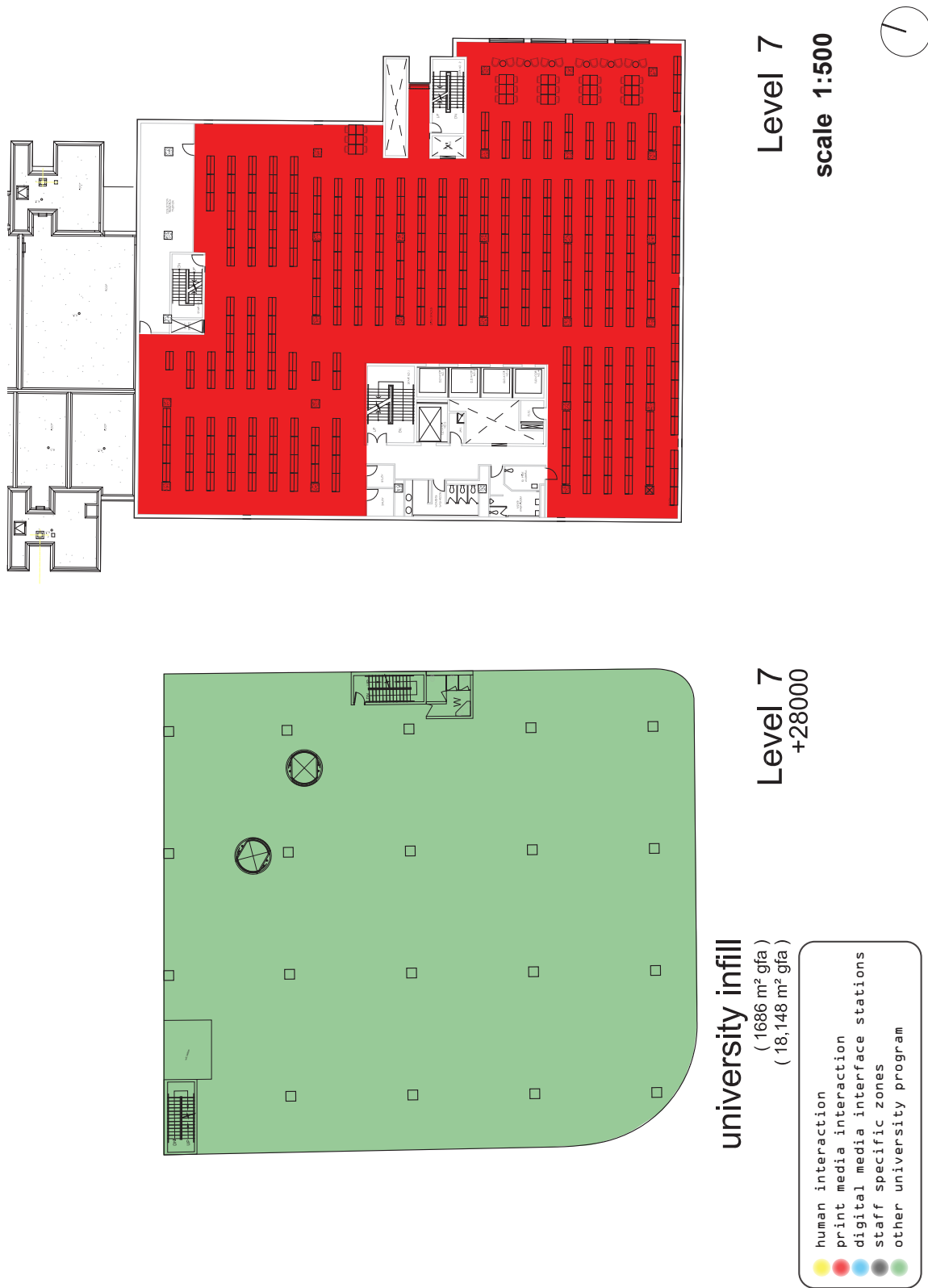
Figure 6.3.3.21 - The Information Exchange: Level 7

Level 8

scale 1:500

Level 8
+32000

university infill
(1715 m² gfa)
(18,460 m² gfa)

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
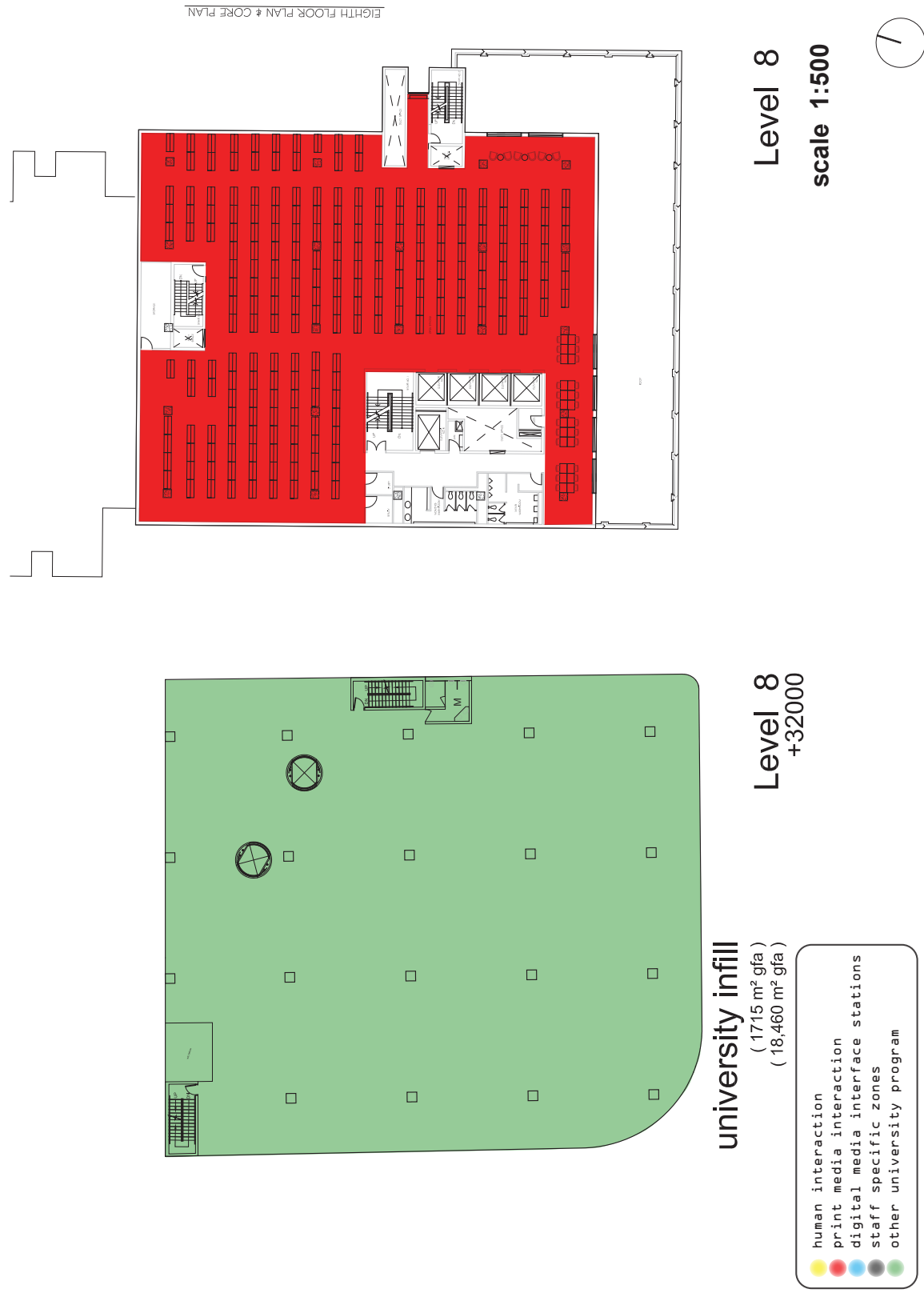
Figure 6.3.3.22 - The Information Exchange: Level 8

Level 9

scale 1:500

Bridge

Level 9
+36000

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
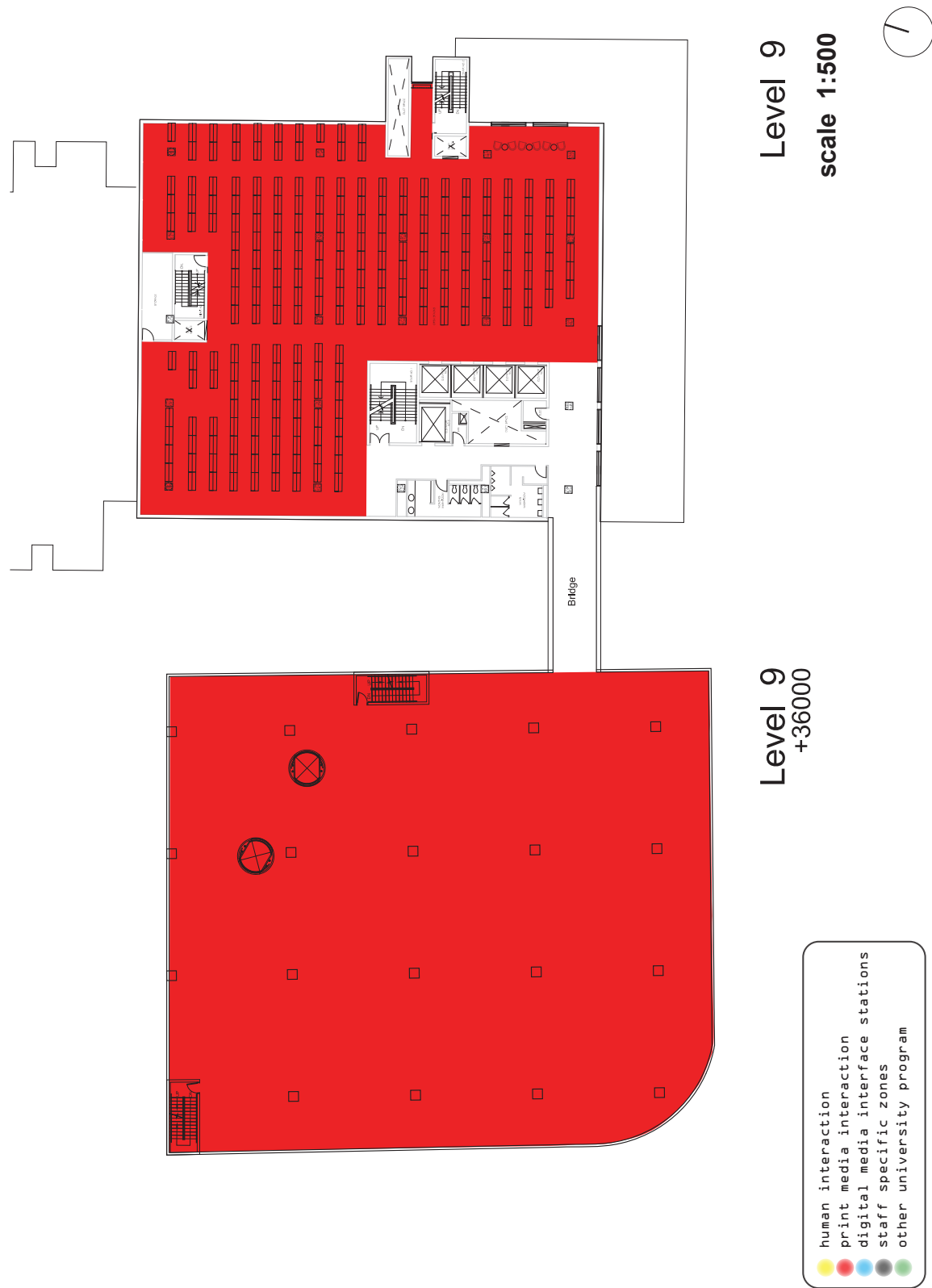
Figure 6.3.3.23 - The Information Exchange: Level 9

56

Level 10
+40000

Level 10
scale 1:500

Bridge

human interaction
print media interaction
digital media interface stations
staff specific zones
other university program
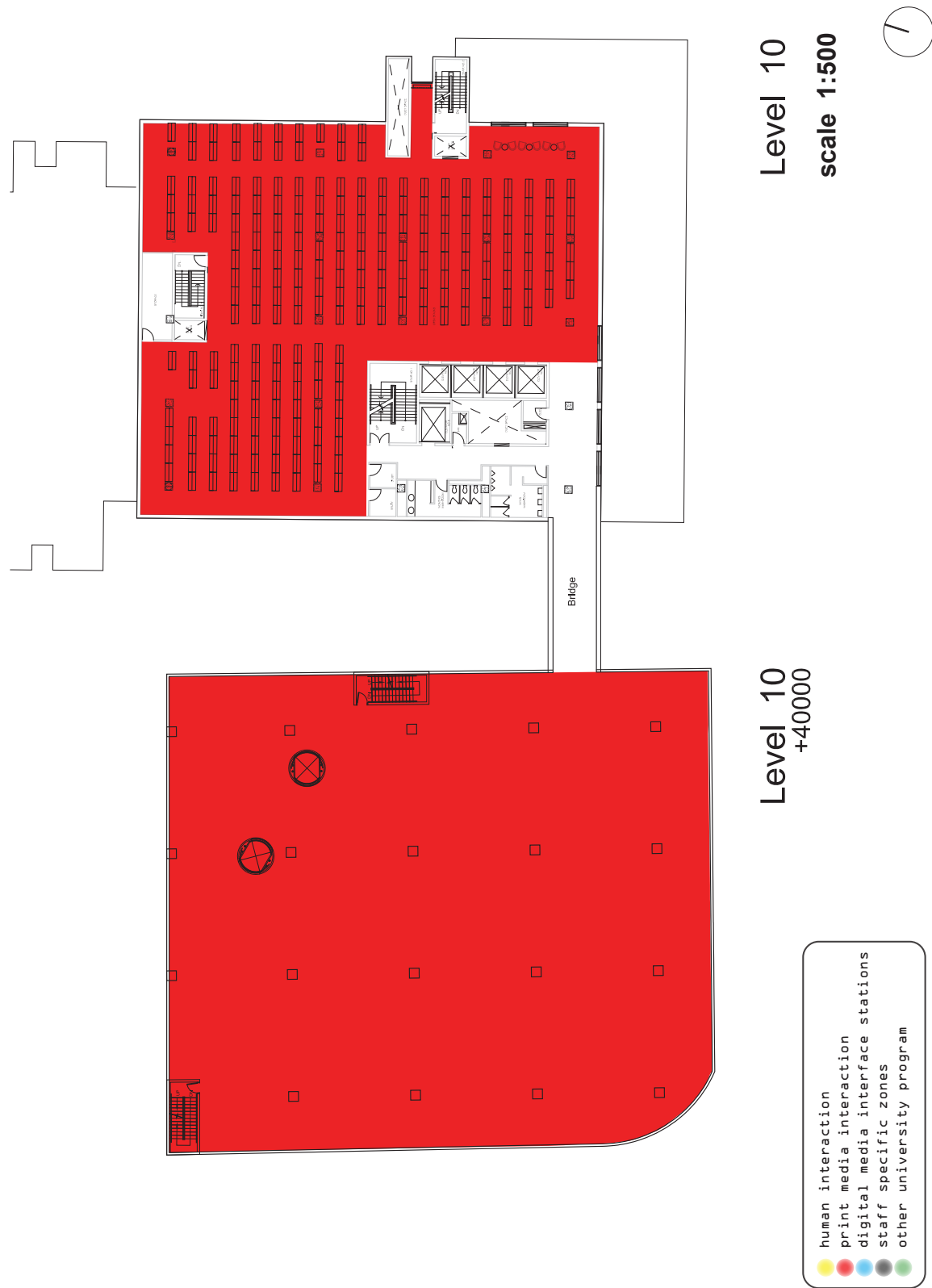
Figure 6.3.3.24 - The Information Exchange: Level 10

6.4 . Conclusion

I feel that in the case of the Ryerson University Library it was important to remember and encourage the fact that it is an academic library. As such it must act as a house that reflects the collective knowledge important to its university community. This design project was intended to respect this notion, but to also understand the need for a well-balanced diet of rich information sources. In dividing this program between two buildings I was able to provide this university with exactly this type of balance and at the same time to also create an environment where students across all of the faculties of Ryerson University can meet, interact, and most importantly of all, exchange information.

7 Summary

The concept of the library is and continues to refer to the function of being a chest for books. Historically the books it contains have continued to evolve and transform between formats. The library has always had to adapt, but has consistently remained an environment that houses the information stored within those books and provided an environment in which to access that information. Digital information is the digital representation of the same types of information contained within books and scrolls and cave paintings and oral legends before that.

The shift in the library that began with the computer revolution in the mid-1980s is in deciding how the form and format of the library need to transform in order to efficiently remain a storehouse of this information. There are many wrinkles in this transition from printed page to digital document. These wrinkles come in the form of older content, copyrights, accessibility, as well as personal format preferences. The modern library has additional considerations to make beyond just its information content. For example, patrons are using the libraries in a different fashion than they traditionally had before. For many patrons in the community, the library acts as a primary Internet point they can plug into for free. The library has also gradually been transforming from an environment that primarily respected the interests of private research and study into a multimedia environment that welcomes conversation and group work.

The modern library must be rethought entirely. It seems to me as though the major hiccups in the conversion from the traditional to the digital within most libraries are occurring because they are being conducted as though they are transitions. It is more logical to step back and assess the important elements of the performance of a modern library as independent entities that when grouped complete the contempory library environment, as OMA did with their design of the Seattle Public Library. The library has grown into so much more than it has been traditionally designed for and currently borders on the needs of both community centre as well as library. If modern libraries were designed with these dual personalities in mind, then specific requirements, be they physical or functional, could be programmed into various points along this spatial spectrum, creating multi-environments that cater to the flexible and ever-changing needs of their evolving patrons.

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6.3.2.1 - Trends effecting Ryerson library since it was built in 1974.

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author.

Table 6.3.2.2 - Program distribution amongst both buildings (post-intervention). By
author.

Tables A.1.2, A.1.3, A.1.4, A.1.5 - All tables were created by Author

Appendices

A.1 . Librarian Survey addressing the implications of technology within the library.

As part of my research, I composed and distributed an online survey to librarians globally. In the following section I will review some of the results of this survey and discuss some of their implications.

I was pleased to find that my survey had reached a global audience of librarians who are

Figure A.1.1 - Preliminary library study survey.
As found online at <http://spreadsheets.google.com/viewform?key=pCDX5A6w8MOxvbvwaoQ7cSQ>

able to offer me their input on my posed questions as well as convey their personal thoughts pertaining to the future of the library. One element that should be noted is that the majority of the survey's participants came from primarily digital backgrounds creating viewpoints from a more contemporary perspective. I had hoped to have a larger response from the traditional style librarians who only represented a small percentage of my found data. I interpret the reason for this being that the survey itself was in a digital format which in retrospect might have limited accessibility to some participants. In the future it would make more sense to circulate the same survey in two formats, one digital and one in print.

Survey Participants

- United States — 68%
- Canada — 18%
- Australia — 4%
- Germany — 5%
- United Kingdom — 5%

Participating Institution Types

- Academic — 59%
- Public — 18%
- Government — 9%
- Botanical Garden (Non-Profit) — 4%
- Special/Museum/Research — 5%
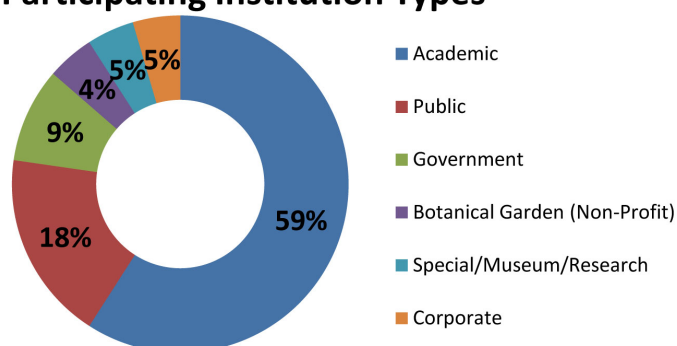- Corporate — 5%
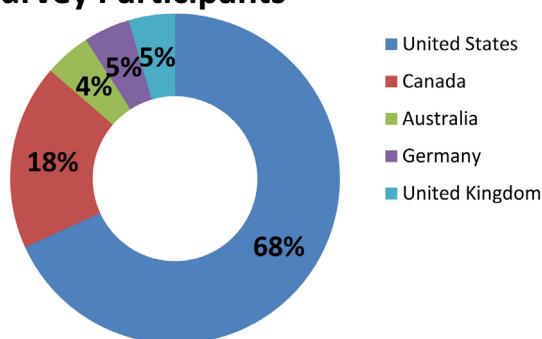
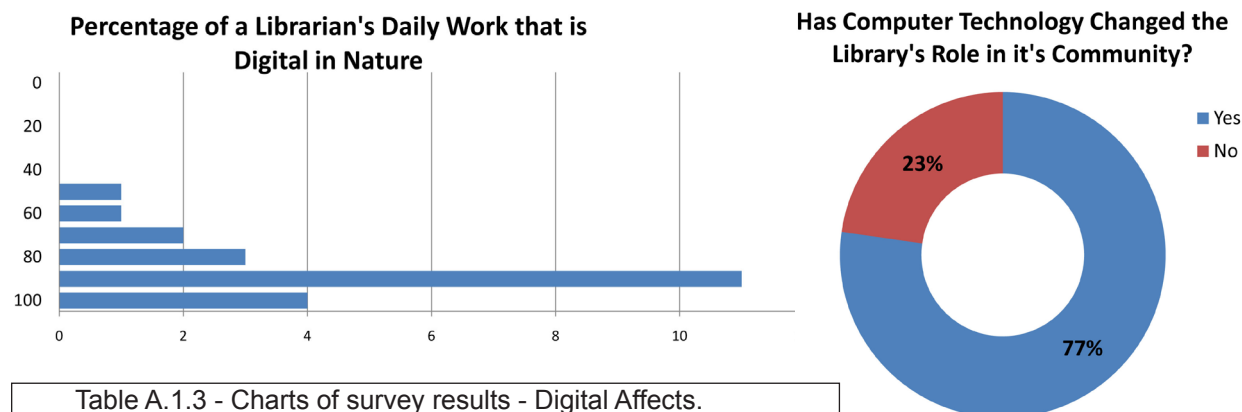Table A.1.2 - Charts of survey results - Participants and Types of Institutions.

In addition, primary participation came from the academic library sector in the amount of 59% of the responses. This indicates to me that it is a hot topic amongst those institutions. Most of my comments from these participants indicated much thought on the subject as well as some concern as to the directions to distribute funding within their institutions. This is obviously a topic of relevance to their specific community and their responses as well's comments reflect this.

Some common observations across the board of responses were that every individual completed the majority of the work digitally. The average was 90% digital work which I found to be remarkable and unexpected. None of the participants reported a workload of less than 50% digital which was also interesting considering that there were still a small contingency of traditional librarians in my sample group. This is an obvious indication of things to come as digital content continues to increase at the accelerated rate.

Another very interesting finding from the survey was that there seemed to be no consistent approach between institutions of indexing or accessing their digital content. Each institution

seem to have their own ensemble of software which they had chosen to organize and access their own digital content collections. It was also interesting that much of the software was extremely out of date not only compared to what is available on the market, but in comparison to what these individuals themselves to work within these institutions would rather be using. It seemed that in only a few cases where the institutions choice of digital management reflected by the individuals charged with their management.

One very interesting response from a survey came from the question whether librarians thought

Percentage of a Librarian's Daily Work that is Digital in Nature

Has Computer Technology Changed the Library's Role in it's Community?

Table A.1.3 - Charts of survey results - Digital Affects.

that computer technology had changed the library's role in its community. I was expecting a unanimous 'yes' but instead there was a 23% 'No' response. In reading the comments posted by this minority response, I discovered that these individuals had responded to their own philosophical concept of what a library is or should be. This was a response reflecting the need for libraries to remain flexible dispensers and storage houses of information. They see computer technology as merely an additional tool rather than a destructive threat to traditional physical documentation practices.

Library Usage

- A Place with Computers and the Internet
- For Quiet Reading / Study
- As a Meeting Place to Work with Others
- For Research
- As a Hangout
- OTHER

The data used to calculate this chart has been weighted according to how it was ranked by individual librarians who completed this survey.
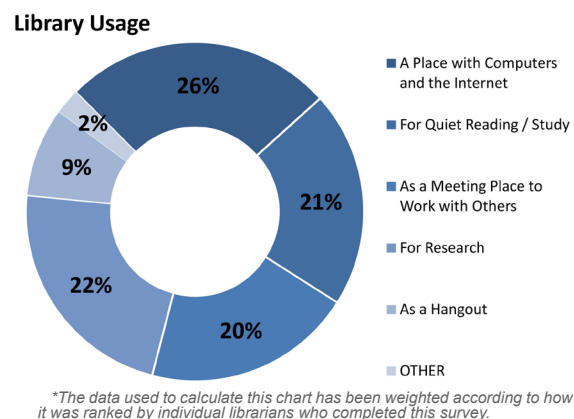
Table A.1.4 - Charts of survey results - Usage (general).

It was very interesting to observe the responses in areas of library usage. These results show that the library has indeed seen a shift internally from traditional usage towards one that more reflects contemporary culture. Digital connectivity ranked the highest amongst the needs of patrons which supports the role of the library as a primary plug in point for many within its community. But what was also surprising was the large number of patrons still using the library as a quiet place for reading

Library Usage

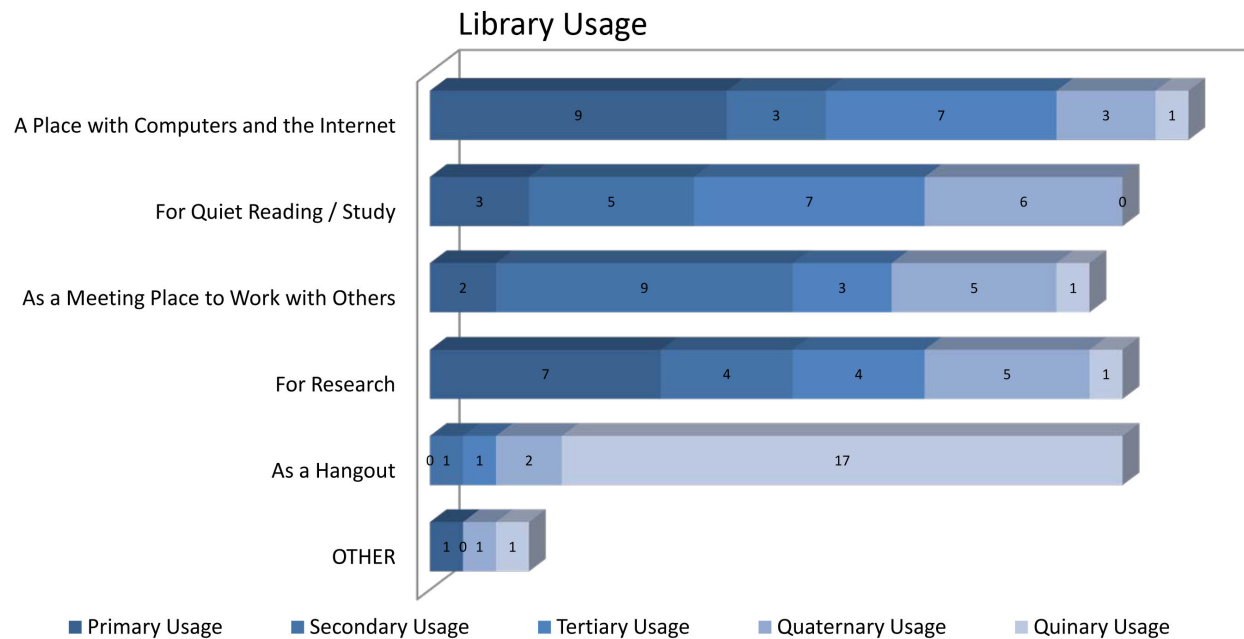|	Primary Usage	Secondary Usage	Tertiary Usage	Quaternary Usage	Quinary Usage
A Place with Computers and the Internet	9	3	7	3	1
For Quiet Reading / Study	3	5	7	6	0
As a Meeting Place to Work with Others	2	9	3	5	1
For Research	7	4	4	5	1
As a Hangout	0	1	1	2	17
OTHER	1	0	1	1	

Table A.1.5 - Charts of survey results - Library Usage (Detailed).

and study. The reason this response was so interesting is that due to the increase of digital connectivity and laptop technology many individuals can complete tasks that they would have traditionally done with in a library anywhere in the world. However they still choose the library environment and many of which include their laptop computer as part of their study process in that environment. What this points to is that even though digital technology has provided geographic flexibility, there are still a few areas with in the community outside of the library that offer environments conducive to what these patrons consider to be favorable.

Most libraries are by their facilities free of charge to their community and beyond which makes it a location of choice for independent study as well as group meetings and small-scale events. My results show that the use of the library as a meeting space is on the rise most likely due to lack of alternatives externally. One danger of this result is that many traditional libraries were not designed to handle the bipolar requirements of quiet study at the same time as the noise generated by groups working. This is why in many more contemporary design strategies these diversities in usage are being programmed into the overall functionality and needs of the library environment.