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LIBRARY 175
PUBLIC 149
BOOKS 131
INFORMATION 114
SEARCH 60
PHYSICAL 59
COMMERCIAL 56
COLLECTION 56
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MARKET 14
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QUALITY 14
EXPERT 14
TECHNOLOGY 14
IMAGE 14
FIND 14
DIGITALIZE 13
FUTURE 12
READING 12

Public Library Exploration

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ABSTRACT

The emergence of the Internet and the digitalization of books and information have deeply influenced the way we consume information. New channels are being developed, new ways of information processing have taken shape and new players did emerge. These developments have put pressure on the traditional role of the public library. Under this pressure, public libraries are forced to redefine their role. The primary focus on being an information provider often shifts towards a facilitating role as a provider of a communal space. This new public role is also an answer to budget cuts by national and local governments, motivated by the thought that in the digital age physical collections of books have little relevance to society. Public libraries and their physical collections have therefore dramatically decreased in size over the years, and some libraries had no alternative but to close down completely.

This development ties in with the broader perspective of retracting governments, resulting in an on-going privatization and commercialization of the public domain. This however puts the free and independent access to public knowledge in danger, as digital services of commercial companies have become our predominant source of information. We can observe that commercially motivated information providers restrict and prioritize their supply based on financial goals instead of the public interest. The question therefore arises whether it was wise to hand over the distribution and management of our cultural and historical heritage to those commercial companies.

In addition, the qualities of the physical collection are often neglected. Physical collections still play an important role in providing free access to public knowledge. They hold certain books with relevant cultural-historical information that for some reason are not being digitized or do not lend themselves to be consumed in a digitized format. When we take a closer look at the digital search systems within public libraries, it is clear that – in terms of technology and funding – they cannot compete with their commercial counterparts. But as an

increasing number of books are no longer physically present in the library, public libraries become ever more dependent on these digital search systems to find the books they no longer own.

Traditional physical search strategies can no longer be applied and librarians do not enjoy their status as experts (which they once were). Because the current search systems are primarily goal-oriented, they are creating issues concerning the findability of books. By the use of emerging technologies, combined with the reintroduction of expert librarians, it is possible to develop associative and explorative search systems that can create new opportunities and a renewed role for public libraries as information providers. Recommendations can then serve a public purpose instead of a financial one. By prioritizing information based on the quality of books rather than their quantitative value, such a system could differentiate itself from existing commercial systems, especially when it addresses not only digital sources, but physical library collections as well. It could create a possible future for public libraries as an information provider that contributes to the self-development of citizens and their access to society and its institutions through the sharing of knowledge, education and culture.

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RESEARCH QUESTION

What is the importance of a public library as the last true public domain in contemporary societies now that commercial companies have become our predominant source of information and how can new search systems contribute in establishing a new informational role that public libraries could fulfill within those societies that distinguishes them from their commercial counterparts?

METHOD

My research primarily focuses on the fields of public libraries, the public domain, commercial information provision and search systems and has been researched through performing a mixture of literature studies, personal observations and interviews. I have interviewed librarians and experts from within the field of public libraries and I have made analyses of both commercial and public library search and recommendation systems through literary studies and personal observations. For the technical aspects of the project I have made an inventory of existing and emerging technologies, some of which are mentioned and implemented in the design directions at the end of this document.

INTRODUCTION

Because of the rise of the Internet, the channels through and ways in which we consume information have drastically changed over the last two decades. These changes have put immense pressure on public libraries in recent years since libraries often haven't been able to respond to these changes in a meaningful way. With my background as a multimedia designer and my knowledge of emerging technologies, I felt that I could make a positive contribution in tackling some of the problems that public libraries are facing today. But my initial motivation for this subject was not only triggered by a mere technological optimism.

Libraries in particular attracted my interest because they play an important and historical role within the public domain. It's a domain that is threatened by commercial influences. As a designer coming from the commercial sector (with multiple internships at a large multinational during my previous study), I have developed an awareness for the tension between the commercial and public interest. Because of this awareness i have become increasingly inclined to work for the public cause, sometimes even with an activist approach.

Commercial companies play a prominent role in the supply and filtering of information. They provide us with an informational layer that is placed on top of reality, a kind of lens through which we are allowed to view the world. I felt the need for some type of counter balance or counter movement in which public knowledge and public institutions can offer other types of lenses through which we can perceive the world around

us. A year ago I worked on another project through which I came into contact with a museum archive. There I saw that the public knowledge that is needed for a counter movement is already present, but often not properly utilized. Therefore it does not reach the audience it was intended for.

As my research on public libraries progressed, I came to understand that the value of public knowledge and the public role of libraries offer a much greater scope and importance than I initially thought. At the same it became clear to me that the public function of the library and the democratic values it represents are even more under threat than I already suspected, recognizing the importance and necessity that they should be actively defended and protected, both now and in the future.

WORDS 906

LIBRARY 36
PUBLIC 16

CITIZENS 7
INFORMATION 7
READING 7
SOCIETY 7

KNOWLEDGE 6
ACCESS 5

BOOKS 4
CULTURAL 4
CULTURE 4
DEVELOPMENT 4
DIFFERENT 4
EDUCATION 4
FREE 4
SOCIAL 4
VALUES 4

ACCESSIBLE 3
ASSIGNING 3
CENTURY 3
CLASSES 3
EMERGENCE 3
GROUPS 3
HISTORY 3
INDIVIDUALS 3

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PROVIDERS 3
SELF-
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START 3

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DEMOCRACY 2
DESCRIBING 2
EDUCATIONAL 2
ENLIGHTENMENT 2
FRAGMENTED 2
GOVERNMENT 2
IDEALS 2
IDEAS 2
INSTITUTE 2
NATURE 2
PARTICIPATION 2
POPULATION 2
QUALITY 2
REASON 2
RELIABLE 2
ROLE 2
SHARING 2
SIXTIES 2
SOURCE 2
TASKS 2
UNEDUCATED 2
WELFARE STATE 2
WORLD-VIEWS 2

The Public Library

01

SHORT HISTORY OF THE PUBLIC LIBRARY

The existence of **libraries** can be traced back far into history. The most well known library in ancient history is the Library of Alexandria in Egypt, which has been described to be the largest and most significant library of the ancient world. But traces go back even further, leading to the first archives of clay tablets dating back to 2600 BC. Public libraries are however a relatively new type of libraries whose origins can be traced back to the **Age of Enlightenment**. Whereas the act of reading and having access to libraries had always been a privilege only granted to academics, clergy, aristocrats, and other wealthy individuals; a new belief in progress trusting on reason and nature broke through in the **middle class** during the second half of the 18th century who tried to empower themselves through the act of reading. Reading informative books and articles together in order to discuss questions about **religion, society, nature, reason** and **education** became the passion of thousands of citizens. But as books and magazine subscriptions were expensive goods, it became attractive to collectively share their costs. This led to the emergence of reading clubs and other new types of libraries such as reading museums, society libraries, commercial libraries, and the National Library. ■

For at least another century, the landscape of libraries has been a very fragmented one, to which different groups had access. Within the Netherlands, this fragmentation has persisted well into the 20th century because of a highly **pillarized society** in which different social groups had access to their own libraries that had their

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own religious and politically motivated selection of books. Around 1900, the government started to subsidize libraries and reading rooms that were freely accessible for the public. Inspired by **socialist** ideals and cultural optimism, libraries were seen as a means to elevate the uneducated lower classes to a higher standard of civilization, knowledge, **morals**, values and norms in a struggle against alcoholism, ignorance, immorality and societal coarsening. ■

Through **secularization** and depillarization of society and the emergence of the welfare state, the fragmented landscape of libraries slowly began to merge. In the late sixties, the public library as we know it, now had acquired a **monopoly** position as a library for the entire population. Because of the anti-authoritarian, anti-elitist and loosening atmosphere of the sixties, public libraries started to put less emphasis on their paternalistic role as an institute that serves the cultural, social or educational self-development of citizens. **Novels** that before had been believed to be of 'no literary value' and purchase-unworthy soon started to fill the shelves in large numbers. The library thereby offered a varied range of books that could satisfy everyone's needs on both information and entertainment. Although nowadays we couldn't image a world without the **Internet** anymore, the library has been for many decades a primary source of free accessible information that has been gratefully used by the public. ■

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THE MEANING AND PURPOSE OF A PUBLIC LIBRARY

Although the emergence of the **welfare state** has faded the Enlightenment ideals of working class elevation within the public library, its echoes can still be felt. There is no uneducated or underdeveloped working class that needs to be elevated anymore, but the idea of the importance of sharing and spreading knowledge, information, education and **culture** is very much alive. Providing citizens the means for self-development is seen by many as a necessity for a well functioning **democracy** and the participation of citizens within society.

“Freedom, Prosperity and the Development of society and individuals are fundamental human values. They will only be attained through the ability of well-informed citizens to exercise their democratic rights and to play an active role in society. Constructive participation and the development of democracy depend on satisfactory education as well as on free and unlimited access to knowledge, thought, culture and information. The public library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups.”

SOURCE: UNESCO. PUBLIC LIBRARY MANIFESTO. 1994 ■

Governmental policy makers, together with libraries and the cultural sector constantly re-evaluate and formulate recommendations and guidelines on how to reach those attributed

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end-goals. A number of core values are therefore assigned to the public library from which they are expected to operate. The following four are usually mentioned: *Independence, Accessibility, Pluralism and Quality*. In a practical sense it means that public libraries are neutral and noncommercial. They operate separately from the government or industry. Every **citizen** should have free access to the services of the library to promote equal educational opportunities for self-development. The library promotes that different groups within the **population** are brought into contact with the ideas and world-views of others. It should therefore include a variety of cultures, **languages** and ideas. It's a reliable institute commissioned to provide citizens with certified knowledge, meaning that its information is reliable and of good quality.

On a more information and activity specific level, The Dutch Association of Public Libraries distinguishes 5 different core tasks for Public libraries: The library as a warehouse for **knowledge and information**, a center for **development and education**, a source of inspiration for **reading and literature**, an encyclopedia of **art and culture** and a platform for **contact and debate**. ■

“A central issue for design is that libraries inspire society. They aim to develop a population by connecting its members to sources of cultural inspiration: provide access to literature, arts and knowledge, stimulate awareness of culture and develop the skills to deal with it. It acts as an interface to our collective memories.”

SOURCE: PALISSER, N. WHAT IF... WHAT WOULD YOU LIKE THE LIBRARY TO BE?. 2006 ■

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WORDS 850

INFORMATION 13
PUBLIC 11

COLLECTION 8
DIGITAL 8
PHYSICAL 8

COMMERCIAL 7
BOOKS 6
INTERNET 6
PEOPLE 5

LIBRARIANS 4
PROVIDERS 4
ROLE 4
SERVICES 4

ACCESS 3
COMPANIES 3
CONTENT 3
DIGITALIZATION 3
KNOWLEDGE 3

MISSION 3
NEW 3
PLACE 3
REPLACE 3
RELEVANCE 3
START 3
VISITORS 3

BUDGET CUTS 2
CORE VALUES 2
DEVELOPMENT 2
DISTRIBUTION 2
DOMINANT 2
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HERITAGE 2
POLICY MAKERS 2
POSITION 2
RETRIEVAL 2
SEARCH 2
SLOW 2
TECHNOLOGICAL 2
TRANSFORMATION 2
USERS 2

A New Digital Paradigm

02

RISE OF THE INTERNET

Because of the rise of the **Internet**, the public library has lost its dominant position as information provider. Any information we need is just one mouse-click or finger-tap away, available at any time and any place. Wireless streams of information now constantly surround us, accessible through **technological** devices that have claimed a prominent place in our left-or-right pockets. Where I as a child can still remember going to the public library to collect information for my **school** assignments; the current generation is growing up with Wikipedia in a 'copy-and-paste' paradigm. And as more and more books are being **digitalized**, the conventional role of the library as a provider of information is increasingly under pressure. Questions are being raised whether maintaining a physical collection still outweighs the new and more efficient ways of **retrieving information** through the Internet. Policy makers, technologists and even people from within the field of libraries often point out that physical collections are losing their relevance as more and more people are using Google for gathering information. Naturally, Google's investors agree:

"The internet has replaced the importance of libraries as a repository for knowledge. And digital distribution has replaced the role of a library as a central hub for obtaining the containers of such knowledge: books. And digital bits have replaced the need to cut down trees to make paper and waste ink to create those books. This is evolution, not devolution."

SOURCE: SIEGLER, MG. "THE END OF THE LIBRARY".
TECHCRUNCH, OCT 13, 2013 ■

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COMMERCIAL COMPETITION

Because of the Internet, free **access to information** is now available through both physical and digital means. These two types of information **consumption** have a relationship, but they are becoming increasingly detached from one another. And that is because public libraries are mostly consulted for content in a physical form, as where people are turning to **commercial** parties for retrieving digital content. As commercial parties are better equipped on both technological and **financial** levels, their services are far better developed than their **governmental** funded counterparts. The majority of people are using services like Amazon and iBooks for accessing digitalized books. On a larger scale, people turn to Google for answering their informational needs on a more direct and subject-specific level. Accessing information through these channels is easy, fast, user friendly and attractive. By contrast, accessing information through public digital library services can often be a hassle. Interfaces aren't user friendly, slow, and digital collections are often incomplete due to **commercial rights**.

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TRANSFORMATION OF THE PUBLIC LIBRARY

The rise of the [Internet](#) and digitalized content makes policy makers, librarians and the public believe that the public library is losing its relevance. This conviction is reflected in the way a lot of libraries are transforming. Budget cuts force them to close, to reduce the amount of objects in their [collections](#) and they are forced to find new ways of attracting visitors in order to prove their relevance. The most clear and observable shift is that libraries are no longer describing their primary role as being a provider of information. Instead, they are starting to focus more on a role as a provider and facilitator of a [communal space](#). Libraries are becoming cultural centers with computer workstations, 3D printers, restaurants, cafés, [exhibition](#) spaces, music studios, and sometimes even day-care facilities where it hosts workshops, lectures, [theater](#) plays and educational courses. At the same time, the physical collections start to shrink and fewer librarians are being employed. Their jobs are being traded for digital search engines and self-checkout desks.

“Our core mission is not the provision of information. Our mission is the enablement of an informed and free society. Our mission is to provide the freedom to discover.”

SOURCE: ROBERTS, KEN. “BUILDING THE FUTURE: NEW DIRECTIONS IN LIBRARY DESIGN”. CALGARY PUBLIC LIBRARY, 25 APR. 2013 ■

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EXIT OF EXPERTISE

The transformation of public libraries not only results in hiring fewer [librarians](#); the librarians that are left have seen their jobs change drastically over the years. They are no longer required to be experts, but are expected to be service employees instead. Recommending books to visitors often does not reach any further than using the library [search engine](#) and helping visitors to find the physical location of a book within the library. Any real knowledge about the collection, the [classification system](#) or on how to curate a collection is slowly starting to disappear.

HANDING OVER OUR HERITAGE

The question arises whether the dominant position of commercial companies as the providers of our information should be regarded as a positive development. With the austerity on public libraries and their physical [collections](#), it seems like we are handing over the management and distribution of our cultural-historical heritage to large commercial companies. We should be aware of the fact that the core [values](#) of these commercial companies are not the same as the ones that apply to public libraries. We should ask ourselves whether it's wise and responsible to increasingly try to [monetize](#) and apply marketing strategies to information that belongs to humanity's common [memory](#). Another problem that arises because of this difference in values is that a meaningful symbiosis between the physical and the digital cannot take place. Instead, they become opposing and competing entities

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BOOKS 18
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RESULTS 13

COMPANIES 11
GOOGLE 11
SEARCH 10

COLLECTION 9
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LIBRARY 8
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CATS 6
FILTERS 6
ONLINE 6
PUBLIC 6

OWNERSHIP 5
RECOMMENDATION 5
RESTRICTIONS 5

ACCESS 4
ACCESSIBLE 4
MATERIAL 4
PERSONAL 4
PROVIDE 4

COMMERCIAL 3
COPYRIGHT 3
DIGITAL 3
DIGITALIZATION 3
DOMAIN 3
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MECHANISMS 3
PAY 3
POPULAR 3
PRIORITIZATION 3
READING 3
STRATEGY 3
VALUES 3
WORLD-VIEWS 3

ALGORITHMS 2
AMAZON 2
ATTENTION 2
AUTOMATIC 2
AVAILABILITY 2
BEHAVIOR 2
BOOKSTORE 2
EBOOK 2
EGYPT 2
FINANCIAL 2
IMAGES 2
INFORMATIONAL 2
ISSUES 2
LEGAL 2
MARKET 2
MEDIA 2
ORDERING 2
PERSONALIZED 2
PHOTOGRAPHY 2
POLITICAL 2
POPULARITY 2
PREDICTIONS 2
PREFERENCES 2
PRIORITIZATION 2
PROFITS 2
PROTECTION 2
PUBLISHERS 2
RATING 2
SELLING 2
SOCIETY 2
TAILORING 2

Commercial Information Provision

03

RESTRICTING ACCESS TO INFORMATION

When collections are being digitalized and or acquired by private companies, restrictions to the accessibility to that information will often be imposed on its users. These **restrictions** often mean that users will have to pay for access to (sometimes previously free accessible) information, or that the public is restricted to any access to the material at all. Apart from the desire that companies have to generate **profits** from their content, the mere digitalization of content itself will often automatically result in issues surrounding the ownership and **commercial rights** of the digitalized material. It's for this reason that it seems to be an (financially) impossible task for public libraries to make digitalized content freely accessible to their audience.

When the Google Books project was announced in 2004, it was then called the Google Library Project. Its aim was to create the world's largest online library by digitalizing book collections including those of several large **academic libraries**. But as the process of digitalization took off, issues surrounding the **ownership** of the digitalized materials started to arise. Was it Google, the libraries, or the publishers of those books that were supposed to be the actual the owners of the digitalized information? The Google Library eventually turned out to resemble more a digital **bookstore** rather than what most people would call a library.

For full ownership of their content, companies therefore have to try and acquire the intellectual property of the content they digitalize. Such a privatization strategy has for example been applied

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to the Bettman Archive, which holds a collection of 19 million historical **photographs** and images. It was sold to Corbis in 1995, a company owned by Bill Gates that now sells the images as digital stock photography. But the company has not only been criticized for restricting **accessibility** to the collection through financial means. After the sale, researchers, **historians** and editors weren't allowed to browse the physical collection anymore, being forced to resort to its digital counterpart instead. But because of the slow process of **digitalization**, it has been reported that just less than 2 percent of the whole collection had been digitalized by 2001. ■

"One immediately wondered why one of the wealthiest men in the world would have an interest in a collection of old photographs, many of which fall within the realm of public domain and are, thus, ostensibly available for anyone to use. The answer lies in an examination of the legal protection extended by U.S. copyright law to visual resource collections and, even more so, by the protection and control vested in outright ownership of non-copyrighted visual materials. As we shall see, lack of specificity in the law and an almost nonexistent record of legal challenge to further refine existing law have allowed the rights of ownership (both individual and institutional) to take precedence over the public's right of access to public domain material."

SOURCE: TAYLOR, BRADLEY. MUSEUM COLLECTIONS AND THE QUESTION OF COPYRIGHT: PRIVATIZING THE PUBLIC DOMAIN. 1995 ■

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MONETIZING YOUR DATA

While using their services, commercial companies will monitor user **behavior** and sell that information to third parties or use it for their own benefits. Sometimes services might seem to be free of charge, but in fact you are “paying” the companies with your **personal data**. The Google search engine is well-known for applying these strategies in order to provide you with their “free” service; but paid services like Google Books and Amazon have been reported to gather data about the **reading behavior** and preferences of its users as well. Not only what books you prefer to read is being registered, but also what pages of the book you read, how long you read them or what sentences you highlight within the **book**. The collected data becomes part of the Big Data pool, used to create profiles and predictions for which companies are prepared to pay large amounts of money. Depending on what type of online service you are using, these predictions might be directly used to target you with tailored **advertisements** for which the companies receive a pay-per-click fee.

PRIORITIZING POPULARITY AND PROFITS

Search results and recommendations are often based on a quantitative value that is assigned to information. When you are for example looking for information about “cats” on Google, it will provide you with search results like “Most Funny Cat **Videos**”, “Funny Cat Pictures” or “Cats The Musical” on the first page. The reason why Google prioritizes these results is because “Most

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“Funny Cat Videos” is a video with 27 million views. This means that the informative or qualitative value of content is subordinate to the amount of **attention** content receives. In a library, looking for information about cats will result in information about cats with a higher informational value. For instance books about the biology of cat species or the history of **domestic animals**.

These prioritization principles are also reflected back into the buildup of search results and recommendations that e-book services provide. The results are mainly **prioritized** based on ratings and sales figures. Front pages are filled with ‘hit lists’, ‘hot this week’ or ‘5 star books’. Like the Google search results, the amount of sales or the height of a book rating does not say anything about the quality of books itself. Book ratings or prioritizations are not made by book critics, experts or librarians; instead a **market mechanism** takes over. And when popular books are placed on top of those lists, they will automatically receive more attention and visibility than books at the very bottom. It’s a mechanism that makes the popular books even more popular solely because of their popularity. Also publishers are aware of this mechanism, hiring **market strategists** in order to get their books into the hitlists upon the launch of a new title. And since you can pay Google for being on top of their search results, it would not be such a weird thought that the same could apply for e-book services.

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PERSONAL RECOMMENDATIONS AND FILTER BUBBLES

Another way of prioritizing search results and recommendations is through **tailoring** them to you based on your personal data. When Amazon was launched in 1995, it was the first company to implement personal recommendations based on user data into its **business model**. The newly emerged biggest online bookstore of the world immediately became a major commercial player within the online world with its new user and customer friendly paradigm: “if you like this, you’ll like that”. Soon other Internet companies followed this new information strategy. Not only has it proved to be a great tool to increase yearly **revenues**, it has also turned out to be a new approach to sort, filter and structure the immense amounts of information available on the web.

This brings us to the fact that a lot of online services are not **standardized** any more, but are becoming ever more personalized. There is for example not such a thing as a “standard version” of Google anymore, instead it filters its search results based on what it thinks is relevant for you. In his book *The Filter Bubble*, Eli Pariser warns us that these personalized search results could lead us being trapped into “filter bubbles”. Within this informational bubble, we are only receiving information through **algorithms** that filter information based on our past experiences and preferences. One test case illustrates how search results based on the keyword “Egypt” would provide a user with information about the war in Egypt, whereas a second user would be present-

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ed with **Egypt** as a suitable holiday destination. A second example taken from Facebook illustrates how algorithms have recognized a user as **politically** left wing oriented, subsequently filtering out political comments from his right-wing oriented contacts. ■

In this way our information scope is being narrowed down, constantly reconfirming our own beliefs. It could possibly lead to the danger of not being exposed to any information that challenges or broadens our worldviews anymore. While **mass media** in the sixties have had a great influence on loosening the traditional social divisions within society, it almost seems as if the new online media are again about to reintroduce a new pillarization of society.

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WORDS 1282

PUBLIC 28
SPACE 21

COMMERCIAL 12
LIBRARY 11
BOOKS 10
INFORMATION 8
MARKET 8

CITY 6
PHYSICAL 6
STRUCTURE 6
COMPANIES 5
PLACE 5

BILLBOARDS 4
TRUE 4
VALUES 4
VISITORS 4

CITIZENS 3
DISPLAYS 3
DOMAIN 3
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PURPOSE 3
REFERENCES 3
SELECTION 3
SIGNS 3

SOURCE 3
STRATEGY 3

ACCESS 2
ASSEMBLY 2
ATTENTION 2
BANNING 2
CLAIMING 2
COMMERCIALIZATION 2
COMMUNICATION 2
COMPROMISING 2
CONSUMERS 2
CUSTOMERS 2
DEMOCRACY 2
DEMOCRATIC 2
EVENTS 2
INFORMATIONAL 2
MOTIVATION 2
PARK 2
PAYING 2
POOR 2
PRIVATE 2
PROVIDING 2
RECOMMENDATION 2
RESIDENTS 2
RETAIL 2
SQUARE 2
START 2
STRONGHOLD 2
TICKETS 2
WEALTHY 2

Privatizing The Public Domain

04

THE PRIVATIZATION OF PUBLICNESS

The ever-expanding dominant position of commercial companies in respect to public libraries fits into a broader movement of **privatization** and **commercialization** of the public domain. This commercial **colonization** of the public domain can be clearly observed when looking at prominent public spaces like large public squares or parks within our city centers. Not infrequently, such **public spaces** are temporary property of commercial companies that use this space to host their branded and sometimes private events. Because of the change in meaning, purpose and accessibility of the physical space changes, its diverse and democratic **demographics** therefore changes as well.

“Tickets to the symbolic incarnation of public space had suddenly fallen under the administration of MTV’s commercial collaborators (...) Hence, for one grand night public space was to pose in glory for the rest of the world, in particular our future generations, to see—encircled by fences, checkpoints, and private guards, and without access for the elderly, the ugly, the poor and the stupid. Fortunately the contradiction in the utterance “Hurrah, I was considered suitable to pay for a ticket to public space!” remained obvious to most citizens. Soon scattered critics could easily advance the simple critique that closed commercial events such as these compromise the idea of public space (if not the idea of a public itself)—that is, as they said, it compromised the idea of a physical

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space to which everyone has access as well as the political and moral guidelines which are derivable from this.”

After the smoke clears, and the public square again regains it’s old purpose, another type of commercial presence becomes visible. If public space itself is regarded as an information structure, it is a structure that is almost completely **monopolized** by commercial companies. A great collage of **billboards**, signs, screens, stereo-speakers and **salesmen** are simultaneously communicating their one-way message towards their potential **customers**. It almost seems as if the essence and sole purpose of the public market square is reduced to serve that other well known market: the financial one.

“Historical assembly bans however provide a decisive clue to understanding wherein the function and value of public space lies. (...) Even though unthinkable in practice an assembly ban, which consisted in one being banned from talking while convening, would be almost as efficient as the classical ban on gathering altogether. In a sense such a ban would indeed undermine the function and value of public space to the same degree as dissolving the crowd. As soon as one realizes this, it becomes obvious that the value and function of public spaces is connected to the kind of information and communication they render possible. That is, a public space is not defined by a range of physical conditions, but by providing an information structure.”

SOURCE: HENDRICKS, VINCENT. INFOSTORMS: HOW TO TAKE INFORMATION PUNCHES AND SAVE DEMOCRACY. 2014 ■

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To again reclaim this information structure, the mayor of Sao Paulo put into effect the Clean City Law in 2006, banning all outdoor advertising within the entire city including billboards, transit and in front of stores. After removing 15,000 billboards and shrinking store signs, a new city emerged from behind the previously present commercial infrastructure. Over 70% of its 11 million residents felt the ban had made a very positive and sometimes unexpected impact on their city. As a resident pointed out: "My old reference was a big Panasonic billboard, but now my reference is an art deco building that was covered by the massive sign. So you start getting new references in the city. The city's now got a new language, a new identity." ■

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THE LAST TRUE PUBLIC SPACE

The public library can be perceived as the last true public space in which commercial companies have not yet claimed its physical space or information structure. It's by some regarded to be the last stronghold where the independent and democratic values of the public domain are still fully preserved; a stronghold that should be defended against the ongoing wave of privatization and commercialization. In this true public space, citizens from all layers of society are still welcome and present as such. And it's in this space where all are free of commercial communication and temptations. It's a place where the sharing of knowledge, education and the expression of culture is still considered to be one of our greatest goods.

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"A library in the middle of a community is a cross between an emergency exit, a life raft and a festival. They are cathedrals of the mind; hospitals of the soul; theme parks of the imagination. On a cold, rainy island, they are the only sheltered public spaces where you are not a consumer, but a citizen, instead. A human with a brain and a heart and a desire to be uplifted, rather than a customer with a credit card and an inchoate "need" for "stuff." A mall--the shops--are places where your money makes the wealthy wealthier. But a library is where the wealthy's taxes pay for you to become a little more extraordinary, instead. A satisfying reversal. A balancing of the power."

SOURCE: MORAN, CAITLIN. "LIBRARIES: CATHEDRALS OF OUR SOULS". HUFFINGTONPOST, 14 NOV. 2014 ■

HOW MARKET THINKING ALREADY INFLUENCES THE PUBLIC LIBRARY

Although it's true that commercial companies have not yet claimed the physical space or information structure of the library, **market strategies** and market thinking have already started to infiltrate the public library. One of the main reasons for this is that **policy makers** are trying to measure the societal relevance of libraries based on the amount of visitors and the amount of books they are lending out. And because of the fact that these numbers have been declining over the years, marketing strategies from retail are being copied and applied on the physical **collection** in order to make libraries "sell" more "products" to their "customers".

We can see examples of these marketing strategies when we look at book displays within the library. Book displays are used to attract attention from and recommend books to the visitor. As librarians point out, it is a tool taken from retail that is very effective in steering reading and lending **behavior** of visitors. But when looking at what types of books are on display, the selections are in a lot of respects very similar to the selections of commercial **bookstores**. It consists mainly of popular books or recently acquired books that have not been "selling" enough. This selection is then also not being made anymore by the librarians themselves. Instead, they receive a list from headquarters each 6 weeks or so, telling them what books to recommend to their visitors. These lists are not motivated by any **educational** or informative value. They are motivated by questions

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like: "how do we maximize lending behavior?" or "How do we improve our yearly **statistics** by so many percent?".

Herewith it follows the rules of the Googles and the Amazons. It places quantity above quality. It does not place informational needs in a perspective of a public that wants to be informed, inspired or educated. Instead, it places informational needs in a perspective of **consumers** in relation to request and demand. It is also a very good example of how **librarians** and experts are less and less in charge of what books we should read. It's becoming more and more a market mechanism that is deciding what books should receive more **attention** than others.

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WORDS 610

PUBLIC 19
LIBRARY 12

INFORMATION 9
COMMERCIAL 7
BOOKS 5
VALUES 5

BROADCAST 3
COLLECTION 3
ENTERTAINMENT 3
GOALS 3
INTERESTS 3
NETWORK 3
POSITION 3
PROVIDERS 3
ROLE 3

AVAILABLE 2
COMPANIES 2
CORE VALUES 2
DEBATE 2
DIFFERENCE 2
FREE 2
FUNDING 2
FUTURE 2
IMPORTANCE 2
INFORMATIVE 2
KNOWLEDGE 2
METHODS 2
NEW 2
PLACE 2
QUALITY 2
RELEVANCE 2
SHARING 2
SOURCE 2

Relevance & Future Survival

05

A CALL FOR DIFFERENTIATION

While commercial companies are taking in an increasingly dominant position as information providers, it might not be such a wise decision for **public libraries** to uncritically adopt and make the commercial methods their own. Their motives to do so are understandable: should the physical collection have any right of existence in the **future**, a transformation has to take place in the way libraries handle and present their information. And in that respect, the commercial companies are performing excellently. But through imitative **behaviour** however, public libraries will always lag behind their commercial opponents. It will render public libraries being left with a badly executed but freely available copy.

In addition, the information-gathering library visitor is a slowly dying breed with an above-average age. The question many people are therefore asking themselves is for how long public libraries will be able to fulfil their role as information providers as younger generations are not using the library anymore as such. They mainly use the library as a **public space** and increasingly less as a free source of public information. If the public library would like to play a meaningful and significant role as an information provider in the future, it will therefore have to readjust and re-evaluate its goals and methods against its core **values**. It should do so in such a way that it positions itself in a unique and differential way compared to its commercial counterparts.

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THE PUBLIC INTEREST AS THE MAIN GOAL

The public library should again position itself as a source of information that serves **society** and its citizens, trusting on the quality and strength of its own core **values** and its own collection. Instead of asking the question: “what books could maximize lending behavior?”, it should again ask questions like “what books could be important to read?”.

A similar discussion is taking place regarding what the role of the Dutch public **TV broadcasting** networks should be. As the government is heavily funding the public networks, the difference in relevance between the informative value and **entertainment** value of its broadcasts in relation to the public interest is under scrutiny. Like public libraries, the public networks seem tempted to follow the same commercial market strategies in order to improve their ratings. But we should ask ourselves what the exact added value of **state funded** entertainment shows are, especially since the commercial channels are already flooded with them. And in a more paternalistic sense, we should be aware of the fact that there is a difference between what information the public “wants” and what information the public “needs”. Looking at the current landscape of available TV-channels, we could probably “need” a little bit less entertainment and maybe a little bit more quality broadcasts focused on sharing **knowledge**, information and **culture** that are worth their funds.

When we look at libraries and their collections with the same point of view, the informative value of content and the public interest should

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again be the main goal. Because of this **prioritization**, other types of books will start to be more important because of their cultural **historical** value or because of their contribution to societal debate. These are books that do not necessarily populate the front pages of iBooks and Amazon; Books for which we need librarians and experts to point out to us their public importance or relevance. It's the same reason why we need curators in **museums** to pre-select our art for us and tell us how to look at it in order to bring us into contact with new ideas, to inspire us in doing and creating new things, to stimulate public debate and the sharing of knowledge.

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WORDS 823

BOOKS 34
PHYSICAL 22

COLLECTION 13
LIBRARY 13

DIGITAL 9
SYSTEMS 9
VISITORS 9
SEARCH 8

INFORMATION 5
STRUCTURE 5
TYPES 5

AVAILABLE 4
CLASSIFICATION 4
PRESENT 4
PUBLIC 4
STRATEGY 4

DESIGN 3
FORMAT 3
QUALITY 3
SELECTION 3

ACCESSIBLE 2
ARCHITECTURE 2
AUTHORS 2
BRANCHES 2
CATEGORIES 2
CATEGORIZATION 2
CONSUMPTION 2
DISPLAY 2
ENGINES 2
EXPERIENCE 2
IMPORTANT 2
INDEX 2
KNOWLEDGE 2
READER 2
SORTING 2
SPACE 2
SPECIAL 2

The Physical Collection

06

QUALITIES OF THE PHYSICAL COLLECTION

Although physical **collections** are under pressure because of the idea that their digital equivalents will eventually replace them, physical collections possess some distinct qualities that are not present in digital collections. When we compare the current available physical and digital collections, it turns out that physical collections hold certain books that are often not digitally available. It's a special selection of **books** that do not lend themselves to be consumed in a digitalized format. These are for example **art books**, **photography books** or other decorated books with unique types of layouts. Unlike for example a novel, these types of books cannot be automatically converted into an e-reader suitable format. This is not necessarily because these books contain pictures, but because of the purposefully designed visual appearance and structure of the book itself.

These books should therefore not be considered to just be a collection of text and images, but should be approached as a holistically designed object instead. Although some of these books are being digitized as well, they can only be digitally consumed by looking at the raw **scanned** file format. Not only does this result in an unpleasant reading experience, but also the entire consciously designed **reading** experience of the physical book is completely lost. Interesting fact is that precisely these types of books often hold a very rich selection of information that belongs to our **cultural-historical heritage**. Because of that, these books do not only hold a physical quality individually, but the physical col-

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lection in itself possesses a **qualitative** difference based on its contents.

The physical collection also fulfils yet another important public role thanks to its physical nature. As described earlier, the notion of publicness is inextricably linked to physicality. And this notion is also applicable to public knowledge. As we have seen, the **digitization** of knowledge often leads to restrictions in its accessibility. Therefore, the access to physical information carriers is still of great value to the free **accessibility of information**. In addition, we have seen that public space should not only be understood as a physical space, but as an information structure as well. We should therefore think about what happens to that structure when books are slowly disappearing out of the library.

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BROWSING THE PHYSICAL COLLECTION

Physical collections within libraries are usually structured according to a [classification system](#). Although different types of libraries make use of different classification systems, they are almost always based on the Dewey Decimal System. The system makes it possible to categorize and [sort](#) books based on their topics. The system makes use of 10 main categories that are constantly divided and branched up into subcategories. When an outermost branch of a category is reached, the books are often [alphabetically](#) sorted by the name of the author. The system makes it possible for librarians to easily manage their collections and makes books findable for visitors within the library. In a lot of cases, the classification system is therefore used to make up the physical structure of the library, as sections and bookshelves are physically arranged according to its categorizations. This physical structuring of the library makes it possible for visitors to apply physical [search strategies](#) within the library in order to find or have spontaneous encounters with different types of books. Apart from the physical categorization of books based on the classification system, other special selections of books are made and presented to visitors through the use of books displays that were mentioned earlier.

In addition to this physical search strategy, there is also a digital search strategy by using digital search engines. [Digital search engines](#) have become increasingly important systems in today's libraries. Since the introduction of [automation](#) within the library, not only managing books is done digitally, but also the way visitors

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can search books within the library. When users are looking for a specific book within the collection they can enter a title, [author](#) or keyword in a search bar, after which a list of corresponding books is displayed on the screen. After selecting the book in mind, the visitor is presented with information about whether the book is available or borrowed, and is provided with an [index](#) number with which the visitor can determine the physical location of the book within the library. If the book is not physically present in the library at that time, the visitor is able to reserve or order the book and will then be able to pick it up a few days later.

The combination of these two strategies makes it possible for a visitor that is for example looking for a book about [Bauhaus](#), to look up the available books about that subject and their corresponding index numbers by using the search engine. If the visitor is looking for books about architecture in general, he can find them at 'The Arts' department within the library, where the bookcases with books on [architecture](#) are located.

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WORDS 1046

SEARCH 17
BOOKS 14
INFORMATION 14
LIBRARY 14

DIVIDE 11
PHYSICAL 9

DIGITAL 7
ENGINES 7
ACCESS 6

COLLECTION 5
COMPUTERS 5
FINDING 5
PRESENT 5

GOAL-ORIENTED 4
INTERNET 4
LIBRARIANS 4
PEOPLE 4
TITLE 4
WEB 4

ARCHITECTURE 3

CITIZENS 3
CLASSES 3
EMERGE 3
KNOWLEDGE 3
PERSONAL 3
PUBLIC 3
SOCIETY 3
STRATEGY 3
SUBTITLE 3
SYSTEMS 3

ACCESSIBLE 2
BENEFITS 2
BUBBLES 2
DEPRIVATION 2
DEVELOPMENT 2
FILTERS 2
INEQUALITY 2
LITERACY 2
PLACE 2
PROBLEMS 2
PROVIDER 2
RESULTS 2
RISKS 2
SEGREGATION 2
SOCIO-ECONOMIC 2

Digital Search Engines

07

THE INCREASING DEPENDENCY ON SEARCH ENGINES

As described earlier, physical collections are currently dealing with drastic budget cuts. In [The Netherlands](#) we can see a movement in which large parts of physical collections disappear from the libraries. The books are placed in depots, or exchanged between the different libraries that begin to operate as a [network](#). This means that an increasing amount of books is no longer physically but virtually present within the library. This leads to libraries being increasingly dependent on [digital search engines](#) to find books within their collection.

“In 2016 the University of Technology, Sydney (UTS) will open a new library. A significant feature of this development involves moving a large proportion of the collection to an Automated Storage and Retrieval System (ASRS). The ASRS will house books underground, making physical access to them no longer possible. Patrons will be able to request books from the ASRS, which will then be retrieved by a robot. Access will be possible only through digital interfaces such as the existing online catalog. (...) When a robot retrieves the books from the shelves our relationship with the collection is altered: we are no longer able to understand or experience the physicality of the collection.”

SOURCE: HIBBERD, G. METAPHORS FOR DISCOVERY: HOW INTERFACES SHAPE OUR RELATIONSHIP WITH LIBRARY COLLECTIONS. 2014 ■

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THE PROBLEM WITH GOAL-ORIENTED SEARCH ENGINES

When we take a closer look at these [search engines](#), it turns out that they are very goal-oriented. This means that the user already needs to know beforehand what book or writer he is looking for. The reason for this is that these search engines often only search for corresponding keywords within the title, subtitle or the [author's](#) name. That means that the more broader or ambiguous the search term gets, the less relevant the search results become when you don't exactly know for what book you are looking for. If you for instance search in the search engine of the Dutch Public Library for 'Bauhaus', you will be presented with books that have 'Bauhaus' in the title or subtitle. This results in a satisfactory list of books. However, if you are looking for a more overarching and general term such as "Architecture", then you will be presented with a list of books with "Architecture" in the title or subtitle. It is however not possible to get a list of books that fall within the category of architecture, but don't necessarily have "architecture" in their title.

This search strategy does not create a problem when it's combined with the physical search strategy that was mentioned before. But as physical [search strategies](#) cannot be performed on all parts of the collection anymore, the [exploratory](#) experience of the physical library is completely lost. Any spontaneous encounter with a previously unknown book is no longer possible since you cannot let yourself be semi-aimlessly led by the physical structure of the library anymore.

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During an **interview**, a librarian at one of the Dutch public libraries explained to me: “a lot of knowledge is lost through the use of this search engine, especially since we as **librarians** are not expected to be experts anymore. The system doesn’t make any personal recommendations like librarians once did, nor does it make use of the knowledge about the **classification system** that is present within the physical library. I have already seen examples where both visitors and librarians are not able to find books on certain topics anymore although those **books** were certainly present within the library at that time.”

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GOAL ORIENTATED SEARCH IN A NEW DIGITAL DIVIDE

Soon after the birth of the internet and the introduction of the **personal computer** into peoples homes, issues and concerns started to arise surrounding the phenomenon of the digital divide. The digital divide is a division between people who do or do not have access to the digital domain. The divide between the two groups occurred because of the **socio-economic inequalities** between citizens, in which the lower classes could not yet afford to buy a personal computer that would connect them to the **Internet**. Because of that, libraries started to provide these groups of people access to computers within their buildings, a service they still provide to this day. Nowadays, the largest part of citizens from all socio-economical layers of society own a computer, smart phone or tablet and **The Netherlands** belongs to one of the top-10 countries when it comes to Internet penetration. Because of that, the digital divide is now mainly used to describe the accessibility to computers and the Internet within **developing countries**. But because of an increasingly fragmented information landscape, a new type of divide is starting to emerge.

Whereas filter bubbles have been described to create a renewed vertical segregation of society (pillarization), a horizontal segregation of socio-economic classes is starting to emerge on the web as well. Since information is now accessible everywhere, the divide does not longer take place between people that do or do not have **access to information** on the web. Instead, a divide is emerging between people that do or do not have the capabilities to find certain information

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on the same web. It's a divide defined by information literacy, where the **illiterate** are at risk of being deprived of information that might benefit them. According to the American Library Association, information literacy is "a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." ■

The danger and difference with this divide is that the lower classes did not end up on the wrong side of the divide because of **financial inequalities**. Instead, the risk of being deprived of information is due to other factors such as education and the informational **ecosystem** they find themselves in. Although the information they might need is readily available on the web, they will not be able to find it through a goal-oriented search since they don't have knowledge about its existence in the first place. And because of an increasingly popularised and **personalised** selection of information, it's getting ever harder to be pointed into the right direction. Goal-oriented search and filter bubbles may prove to be a dangerous cocktail; Especially for those who might be in need or would benefit from an independent and reliable source of information the most. It's here where public libraries can again play an important role in the provision and **exploration** of information in order to contribute to the self-development of citizens and the level of access they have to **society** and its institutions.

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WORDS 2537

BOOKS 32
LIBRARY 28

NEW 16
DESIGN 15
INTERESTS 15

CONTENT 13
DATA 13
PUBLIC 13
SEARCH 13

INFORMATION 12
USERS 11
IMAGE 10
TECHNOLOGY 10

CREATION 9
KNOWLEDGE 9
TOOLS 9

COLLECTION 8
CONNECTIONS 8
DIGITAL 8
EMERGING 8
EXPLORE 8
ORDERING 8

DIRECTIONS 7
EXPLORATORY 7
COMMERCIAL 6
INFLUENTIALS 6
TOPICS 6

ART 5
COMPUTERS 5
EXPERTS 5
FUTURE 5
HISTORICAL 5
LANGUAGE 5
LINKS 5
MUSEUM 5
PHYSICAL 5
PLACE 5
RELATIONSHIPS 5
VISITORS 5
WEBPAGE 5

ANALYSIS 4

DEVELOPMENT 4
DIFFERENTIATION 4
ENRICHING 4
FINDING 4
IDEAS 4
IMPORTANCE 4
INTERFACE 4
LIBRARIANS 4
MEANINGFUL 4
PRESENTING 4
PROCESS 4
PROVIDER 4
RESEARCH 4
SOCIETY 4
STRATEGY 4
SUBJECTS 4
SYSTEMS 4
VALUABLE 4
VALUES 4

AUTHORS 3
DIGITALIZATION 3
DIGITIZING 3
DISPLAYING 3
DOMAIN 3
EVENTS 3
EXPERIENCE 3
GOOGLE 3
GUIDING 3
LOCATIONS 3
PERSONAL 3
TIMELINES 3

AUTOMATED 2
DEBATE 2
END GOALS 2
HISTORY 2
HORIZONS 2
HUMAN 2
IMPORTANCE 2
INDEPENDENT 2
INTERACTION 2
PRINCIPLES 2
RECOMMENDING 2
REINTRODUCTION 2
STIMULATING 2
STRUCTURE 2
TAG 2
TEXT 2
WEB 2

Design Proposal & Directions

08

DESIGNING FUTURE DIGITAL LIBRARY EXPLORATION

Although the great importance that public libraries have to the public domain and a healthy **democratic society**, their role as information providers is threatened. As a design project, I want to explore how I can address the mentioned problems that physical **collections** are struggling with. My main focus will lie on finding ways in which we can explore and rediscover the physical collections through the use of digital tools while at the same time safeguarding and carry out the core **values** and tasks of the public library. In addition, I would like to shift the paradigm of the on-going **digitalization**, as being a threat to the public library towards the idea that digitalization could be a tool to enrich and revitalize the library experience.

Looking at the technological state of the movement of digitalization we can see that digitized content is very self-contained at this point in time. New channels for the distribution and **consumption** of content have led to more mobility, speed and ease of use. But at the same time designers are in some respects still very limited in creating new forms of engagement with digitalized content. But that is likely to change in the future. Through emerging **technologies**, new opportunities on how to approach, handle and present digitized content will emerge in the near future. New valuable connections between information, forms interaction and **exploration** will be available to us, which could support and strengthen the public library's core values in new ways.

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Therefore, my goal is not to design a directly applicable product for tomorrow. But instead to design a **communicative** tool or vision that asks questions about what a public digital library could be in 10 years from now. The end-goal is to create a design that stimulates **policy-makers**, librarians and **citizens** to think about what public libraries are and what role they could fulfill within our lives and the digital domain before we blindly hand their management over to commercial parties.

“Anthony Dunne and Fiona Raby propose a kind of design that is used as a tool to create not only things but ideas. For them, design is a means of speculating about how things could be—to imagine possible futures. This is not the usual sort of predicting or forecasting, spotting trends and extrapolating; these kinds of predictions have been proven wrong, again and again. Instead, Dunne and Raby pose “what if” questions that are intended to open debate and discussion about the kind of future people want (and do not want).”

SOURCE: DUNNE, A. RABY, F. SPECULATIVE EVERYTHING: DESIGN, FICTION, AND SOCIAL DREAMING. 2013 ■

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EMERGING TECHNOLOGIES

We will now shortly discuss the most important emerging **technologies** that can lead to new and interesting possibilities for digitalized library content, especially when they are combined. Existing technologies that are already being actively used by **public libraries** or commercial companies such as recommender engines, social networks and mobile devices will not be discussed but can be kept in mind as possible technologies that could be worked with.

NATURAL LANGUAGE PROCESSING

NLP is a field of computer science, **artificial intelligence**, and **linguistics** concerned with the interactions between computers and human languages. Many challenges in NLP involve natural language understanding, enabling computers to derive meaning from human or natural language. When applied to **books**, computers will be able to dissect, 'understand' and make connections between written content. NLP covers a very broad field of research and is constantly under development. It has for instance already been applied in automatic text **translators**, the generation and summarization of news articles, or automated personal assistants like the Siri software in Apple's iPhone.

IMAGE ANALYSIS

Image analysis is the extraction of meaningful information from digital images by means of digital **image processing** techniques. Image analysis tasks can be as simple as reading bar coded tags or as sophisticated as identifying a person from

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their face. The technology can be used to interpret images within books, but can also be used to recognize the things depicted on those images within the physical world.

LINKED DATA

Linked Data is a term coined in 2006 by Tim Berners-Lee, best known as the inventor of the World Wide Web. It describes a method for **publishing** structured data in such a way that it can be interlinked and become more useful by making webpages **automatically readable** by computers. The most important aspect about Linked Data is that not only webpages have an address (URL), but the content within webpages as well. This would mean every piece of text, image, **video** or other pieces of data can be accessed independent of their webpages. **Algorithms** can then find relationships between different pieces of data. If you for instance take an image of the Eiffel tower, it will be possible to automatically find all other pieces of data that are connected to it on the internet such as its location, the **architect**, the year it was built etc. creating a web of information surrounding that piece of data. The strength of the relationships is determined by how many times certain pieces of data are found together on the same **webpage**. Google has already reported working on implementing principles of Linked Data through The Google Knowledge Graph project.

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DESIGN DIRECTION: EXPLORATIVE SEARCH

By using exploratory [interfaces](#) we can try to fill the gap that has been created by the disappearing physical [search strategies](#). Explorative interfaces make use of exploratory search strategies, which are the counterparts of goal-oriented search strategies. Through such an interface, visitors will again be able to get in touch with new ideas, to be inspired, stimulated, to discover new areas of [knowledge](#). Its users don't necessarily need to have a clear end-goal in mind while browsing the collection. They are instead invited to explore the collection by allowing them to be guided by the connections that are made between the different pieces of content and their underlying subjects.

“Exploratory search is a topic that has grown from the fields of information retrieval and information seeking but has become more concerned with alternatives to the kind of search that has received the majority of focus (returning the most relevant documents to a Google-like keyword search). The research is motivated by questions like “what if the user does not know which keywords to use?” or “what if the user is not looking for a single answer?”. Consequently, research began to focus on defining the broader set of information behaviors in order to learn about situations when a user is—or feels—limited by having only the ability to perform a keyword search.”

SOURCE: BY WIKIPEAIANS. INFORMATION RETREIVAL, P.50. PEDIAPRESS, 2015 ■

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For creating valuable exploratory experiences, the assignment of tags and the [categorizing](#) of content is of great importance for creating strong and meaningful connections. In current exploratory interfaces, we can see that those connections are often weak, incomplete, irrelevant or incorrect. That's mainly due to the fact that in a lot of cases these connections have to be made manually, and are often required to be made by the end-users themselves. But by using the earlier mentioned emerging technologies, this process can be largely [automated](#).

By applying a combination of Natural Language Processing, [Image Analysis](#) and Linked Data on digitized books, it will also be possible to develop new digital search strategies for exploratory search. Where before, relations were only made between books through metadata about the title, [author](#) and subject of the book, it will become possible to make connections between information present within those books and make that information searchable. It will then not only be possible to search for [books](#) within the library, but to search within the collective body of knowledge within the library independent of the books they are in.

In addition, a reintroduction of the [Dewey Classification System](#) could take place as well in order to reinforce and enrich those relationships. The Dewey Classification System has been proven to be very valuable and rather impressive accumulated body of work that has been gratefully used by libraries by matter of decades. It might again enrich new [information systems](#) with old accumulated and already existing knowledge that might otherwise slowly disappear from public libraries.

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#025.04

DESIGN DIRECTION: CURATING AND RELATING TO THE HERE AND NOW

Book displays have been proven to be a powerful tool to guide the **attention** and interests of library visitors. But as we have seen, the selections that are being made for those book displays need a new approach that is more focussed on serving a public interest and relating to contemporary issues or events within **society**. One way to do this is by making selections of library content that are in some ways relating to specific events, subjects or locations that are situated in the here and now. By addressing for example “hot topics” from the **news**, popular media or physical locations, libraries have to opportunity of provide context to those topics by providing backgrounds and deepening information by illuminating them from different angles. The main characteristic of hot topics is that their life-span and their accompanying **debates** are often short-lived. But their underlying subjects are often of a recurring nature within both the general public debate and the available **knowledge** within the library. It can be a great tool to bring people into contact and provide them with books or topics that are still unknown to them. That is because the starting point and reference to these unknown territories are related to topics with which they are already familiar with and lie within their own interests.

In order to make these type of connections, some form of **curation** will have to be performed by experts within library collections. For museums it seems a very natural and self-evident practice to constantly curate their collections in

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order to highlight particular themes. But for libraries it is in many cases still a very unknown and non-existing practice. That is a quite interesting fact, as both institutions are responsible for maintaining archives that contain culture-historical knowledge that belongs to the public domain. In that sense, libraries can learn a lot of **museums**. Therefore, a return and reintroduction of experts and **librarians** into the library system will have to take place. These librarians will act as **curators** of the collections instead of only being service-providers to library visitors.

If we take a closer look at museums, we can see that also they are in some cases already trying to look for new relationships to the here and now. As many **museum collections** are under pressure as well, they therefore try to establish closer relationships with societal tendencies. Examples include The Victoria and Albert Museum, which acquired Katy Perry Eyelashes and a pair of Primark jeans through what they call ‘rapid response collecting’; The Rijksmuseum tried to mingle itself in the ‘Black Pete discussion’, by displaying a small a series of 19th century **illustrations** showing ‘the birth of Black Pete’. The Rijksmuseum has also collaborated with Alain de Botton, who in his book Art as Therapy proposes a new type of art curation through which art is used in trying to answer **existential** and contemporary societal questions.

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DESIGN DIRECTION: INFLUENTIALS AND TIMELINES

In order to create a new type of prioritization of content, we have to again re-consider which books should be important and receive more attention than others. We can do this by using the knowledge and skills of experts, **book critics** and librarians to assess books and place them in a broader **historical** perspective. We can for example evaluate books based on how influential authors, books or the ideas within books have been. We can do this by scanning how many times a book or author is being referenced in other books or by looking at how many copies of certain books have been printed. Subsequently we can invite experts and critics to then interpret this **mathematical** reality. Apart from any historical or influential value, experts are also very important in order to assess the individual quality of the books itself. This is even more the case for more recent books that will have smaller amounts of **circulating** copies and to which less books are referencing to.

After establishing this new type of prioritization, we can put those books and people within a broader historical perspective by placing them on historical **timelines**. Through creation of these timelines, a clearer overview emerges of where ideas or events within books belong in a historical sense. It also creates interesting possibilities to give the user insight into what took place before, after or within a same period of history. By indicating the influential and chronological position of books, users will be able to make

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more meaningful **choices** from the very large available books within the library. If as a layman you would for instance find yourself in front of a richly filled bookcase of art books, it may be very difficult to know where to begin. If you are however provided with visual cues that show you the **chronological** order of the different types of art movements, who in those movements where the most influential **artists**, and what artworks have made them famous, you are already well on your way. The same principles can be applied to many other categories of books such as philosophy, **novels**, history, politics, economics etc.

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DESIGN DIRECTION: PERSONAL CATALOG

By letting users create their own personal library, they can be presented with an overview and get insight into their own fields of interests. Although commercial parties use this type of data to filter the information through **personalization**, we can also use this data in other ways in order to broaden the horizons of users rather than narrowing it. By visualizing fields of interests, recommendations can be made to expand already strong fields of **interest** or to encourage users to expand the more underdeveloped or yet non-existing fields of interest. The latter has an increased **educative** value because it encourages library users to broaden their horizons as much as possible. When a user for instance shows very little interest in **poetry**, it then might be less interesting to recommend a maybe highly influential but potentially intimidating book of poetry. But if the user for example shows a keen interest in the period **1939-1945**, then recommendations of poetry books can be made to match those interests. In this way, the threshold can be lowered in order to have users explore yet unknown or unfamiliar fields of knowledge.

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EXPLANATORY NOTE ON DESIGN DIRECTIONS

The described design directions are all possible ways that could contribute in enriching the current library experience. Please be aware of the fact that exploratory search should be mainly seen as a technical innovation that is also especially being **researched** and developed by commercial parties at the moment. The differentiation from those commercial parties therefore mainly lies in the way content is **selected** and presented through such explorative search appliances. All the subsequent design directions are possible answers on how to create such differentiations. The design project should therefore not be seen as just a mere call for **technological innovation**, but a call for the development of a set of digital tools. Tools with which library visitors are enabled to explore content in such a way that it serves a public interest and contributes to their self-development. Tools with which library visitors can be guided in a **valuable** and meaningful way through vast amounts of knowledge that would otherwise be structured through commercial motivations.

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WORDS 766

PUBLIC 16
INFORMATION 15

CITIZENS 9
INTEREST 9

LIBRARY 7
DESIGNER 6
IMPORTANCE 5
SOCIETY 5
TECHNOLOGY 5

COMMERCIAL 4
INDEPENDENT 4
STRATEGY 4
TOOLS 4

ACCESS 3
DEVELOPMENT 3
ENABLING 3
KNOWLEDGE 3
POSITION 3
PROGRESS 3
PROVIDER 3
TECHNOLOGY 3
VALUES 3

COLLECTION 2
CULTURAL-
HISTORICAL 2
DESIGN 2
EDUCATION 2
EMERGING 2
EMPHASIS 2
FINANCIAL 2
FULFILL 2
FUTURE 2
INDEPENDENCE 2
INNOVATION 2
INSPIRING 2
INSTITUTION 2
MANAGING 2
MARKET 2
ORGANIZING 2
PLACE 2
PRINCIPLES 2
REFLECTION 2
SEARCHING 2
SERVING 2
SHARING 2
SOURCE 2
SPACE 2
SUPPORTING 2

Conclusion & Reflection

09

CONCLUSION

Although commercial parties have become our dominant providers of information, the public library still fulfills an important role within society as an independent information provider. Now that governments are privatizing their public roles and institutions, a commercialization of the spaces, services and information to which citizens have access to is taking place. Within this emerging gap, the public library can serve as a counter balance by positioning itself as an institute where the public interest is being served. The public library can become a powerful point of contact for citizens who seek an independent source of information and support. The public library should therefore not only primary see itself as a manager of a public space, but also as a very important manager and independent gateway to public knowledge.

To enable the public library to survive and regain its relevance as such an information provider in the future, it will have to re-adjust its current information strategies and at the same time withhold itself from copying the strategies applied by commercial parties. The public library should differentiate itself by choosing not to apply commercial inspired market strategies on its collection, as they have proven to restrict and prioritize information based on financial instead of public interests.

In order to accomplish such a change, other principles should be applied to the prioritization, organization, recommendation and presentation of the information within their cultural-historical collections. Those principles should be inspired by serving public interests and addressing

contemporary issues, linking library content to the here and now, and laying the emphasis on the quality and substance of books and ideas, instead of their market value.

Existing and emerging technologies will help create new possibilities in the development of new types of associative search processes that support the acquisition and sharing of knowledge. Together with a reintroduction of expert librarians, such search systems could be of great value, guiding citizens into the right directions and fulfilling their informational needs. The emphasis lies on developing a set of tools that contributes to the self-development of citizens and their access to society and its institutions through the sharing of knowledge, education and culture.

POSITION AS A DESIGNER

In a world where technology is developing at an ever-increasing speed, there often seems to be no time or place for any critical or ethical reflection on the impact that these technologies have on our lives or society as a whole. Potential problems that arise through the implementation of new technologies are often experienced or recognized afterwards. That has partially to do with the fact that technology and innovation have become notions that symbolize progress. And to my opinion, this progress is primarily an economically motivated form of progress. Technology and innovation are therefore increasingly seen as an end-goal instead of a means. This is also reflected in the immense public interest and value attached to new technologies, where everybody seems to be under a perpetual spell regarding the latest app and the arrival of the latest iPhone. However, substantially less public attention is given to the question what actual influence these apps and devices have on our daily lives or society and how to deal with them.

I therefore position myself as a designer as someone who tries to detect and analyse sometimes unnoticed problems or societal conflicts and subsequently looks for a combinations of technologies and information strategies that could lead to positive change. To enable this change, I think speculative design can be an interesting communication tool to let policy makers, businesses and citizens think about what kind of future they do or do not want. When I reflect on my role as an information designer within an information and network

society, I think designers will play an increasingly important role as the designers of tools; tools that enable and empower citizens to organise their own lives. To aid citizens in making the right choices, the access to information will therefore play in increasing important role.

Within the accessibility to information, there are still many uncovered territories in which the public interest outweigh commercial interests, but are not treated as such. In that respect, this design project focuses mainly on the public interests in relation to cultural-historical information, but similar occurrences can be found in other areas where designers can play an important role for citizens in relationship with government agencies and non-profit organizations. These areas cover topics such as health, education, financial independence, social connectedness, consumer interests and political transparency. Areas where a well-designed source of reliable and independent information could ensure and contribute to the independence and well-being of citizens.

Sources & Classifications

10

BIBLIOGRAPHY

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van librije tot virtuele bibliotheek
Paul Schneiders
1997
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*UNESCO, International Federation of Library
Associations and Institutions*
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- S:03** **PUBLICATION**
Bibliotheek van de toekomst - knooppunt
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Jan. 2014
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Nadia Palisser
VOB
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- S:05** **WEB ARTICLE**
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MG Siegler
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- S:23** **PUBLICATION**
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RSA Social Brain Center
Jun. 2012

DEWEY DECIMAL CLASSIFICATIONS

#000 COMPUTER SCIENCE, KNOWLEDGE & SYSTEMS

- 001 Knowledge
- 002 Books
- 004 Computer science
 - 004.6 Interfacing and communications
 - 004.67 Internet
- 006 Special computer methods
 - 006.2 Automatic identification and data capture
 - 006.3 Artificial Intelligence
 - 006.7 Multimedia Systems

#020 LIBRARY AND INFORMATION SCIENCES

- 020.9 History, geographic treatment, biography
 - 020.92 Librarians
- 021 Relationships of libraries, archives, information centers
 - 021.6 Cooperation and networks
 - 021.65 Library information networks
- 025 Operations of libraries, archives, information centers
 - 025.04 Information storage and retrieval systems
 - 025.042 Digital search engines
 - 025.3 Bibliographic analysis and control
 - 024.4 Subject analysis and control
 - 025.42 Classification and shelving
 - 025.43 General classification systems
 - 025.431 Dewey Decimal Classification
 - 025.48 Subject Indexing
 - 025.5 Services for users
 - 025.52 Reference and Information Centers
 - 025.524 Information Search and retrieval
 - 025.8 Maintenance and preservation of collections
- 027 Libraries
 - 027.4 Public Libraries
 - 027.7 Academic Libraries

#060 GENERAL ORGANIZATIONS AND MUSEOLOGY

- 069 Museums
 - 069.9 History, geographic treatment, biography
 - 069.92 Museologists
 - 069.5 Collections and exhibits of museum objects
 - 069.51 Selection, acquisition, disposal

#070 DOCUMENTARY MEDIA

- 070.1 News Media
- 070.5 Publishing

#140 PHILOSOPHICAL SCHOOLS OF THOUGHT

- 142 Critical philosophy
 - 142.7 Phenomenalism and phenomenology
 - 142.78 Existentialism
- 147 Pantheism and related systems and doctrines
 - 147.4 Pluralism

#150 PSYCHOLOGY

- 153 Conscious mental processes and intelligence
 - 153.1 Memory and learning
 - 153.12 Memory
 - 153.15 Learning
 - 153.153 Interest
 - 153.4 Cognition (Knowledge)
 - 153.43 Reasoning
 - 153.6 Communication
 - 153.7 Perceptual Processes
 - 153.733 Attention
 - 153.8 Volition (Will)
 - 153.83 Choice
- 158 Applied psychology
 - 158.3 Counseling and interviewing
 - 158.39 Interviewing

#170 ETHICS (MORAL PHILOSOPHY)

#200 RELIGION

#210 NATURAL THEOLOGY

- 211 Concepts of God
 - 211.6 Humanism and secularism

#300 SOCIAL SCIENCES

- 302 Social Interaction
 - 302.2 Communication
 - 302.22 Kinds
 - 302.224 Illiteracy
 - 302.23 Mass Media
- 303 Social Processes
 - 303.3 Coordination and control
 - 303.37 Normative Methods
 - 303.372 Values
- 304 Factors affecting social behavior
 - 304.6 Population
- 305 Social groups
 - 305.5 Social Classes
- 306 Culture and institutions
- 307 Communities
 - 307.7 Specific kinds of communities
 - 307.76 Urban communities (cities)

#310 GENERAL STATISTICS**#320 POLITICAL SCIENCE (POLITICS AND GOVERNMENT)**

- 302.6 Policy formulation
- 323 Civil and political rights
 - 323.4 Specific civil rights
 - 323.44 Freedom of action (Liberty)
 - 323.334 Access to information
 - 323.6 Citizenship
- 325 International migration and colonization
 - 325.3 Colonization

#330 ECONOMICS

- 330.1 Systems and theories
 - 330.12 Systems
 - 330.122 Free enterprise economy
 - 330.126 Welfare State
- 332 Finance
 - 332.6 Investment and investments
 - 332.64 Exchange of securities and commodities
 - 332.645 Speculation
- 333 Land economics
 - 333.1 Public ownership
- 335 Socialism and related systems
 - 335.4 Marxian systems
 - 335.41 Philosophic foundations
 - 335.412 Value
 - 335.5 Social Democracy
- 336 Public finance
- 338 Production
 - 338.06 Production efficiency
 - 338.064 Technological Innovation
 - 338.5 General production economics
 - 338.51 Costs
 - 338.516 Profits
 - 338.8 Combinations
 - 338.82 Restrictive Practices
- 339 Macroeconomics
 - 339.2 Distribution of income and wealth
 - 339.4 Factors influencing national product, wealth, income
 - 339.47 Consumption

#340 LAW

- 343 Tax, trade, industrial law
 - 343.02 Public Property
- 346 Private law
 - 346.04 Ownership
 - 346.047 Private ownership
 - 346.048 Intellectual ownership

#350 PUBLIC ADMINISTRATION

- 351 Administration of central governments
 - 351.7 Property and financial management
 - 351.72 Financial management
 - 351.722 Appropriation of Public Funds

#360 SOCIAL PROBLEMS AND SERVICES

- 363 Other social problems and services
 - 363.6 Public utilities and related services
 - 363.69 Historic Preservation

#370 EDUCATION

- 371 Schools

#380 COMMERCE, COMMUNICATION

- 380.1 Commerce, Marketing
- 381 Domestic trade
 - 381.092 Salesmen
 - 381.1 Retail
 - 381.12 Chain stores
 - 381.3 Consumerism
- 384 Communications
 - 384.5 Wireless communication
 - 384.55 Television broadcast
 - 384.558 Video recordings
- 389 Metrology and standardization
 - 389.6 Standardization

#400 LANGUAGE**#410 LINGUISTICS**

- 411 Alphabets
- 418 Applied linguistics
 - 418.02 Translation and interpretation
 - 418.4 Reading

#500 SCIENCE

- 508 Nature

#500 MATHEMATICS

- 511 General principles
 - 511.8 Algorithms

#520 ASTRONOMY

- 529 Chronology
 - 529.4 Western calendars

#570 LIFE SCIENCES

- 574 Biology
 - 574.5 Ecosystems

#600 TECHNOLOGY

- 607 Education and research
 - 607.2 Products Research

#620 ENGINEERING

- 621 Applied physics
 - 621.3 Computer engineering, lighting
 - 621.36 Optical engineering

#620 AGRICULTURE AND RELATED TECHNOLOGIES

- 636 Animal husbandry

#650 MANAGEMENT

- 658 General management
 - 658.5 Management of production
 - 658.56 Production control
 - 658.562 Quality control
 - 658.8 Management of distribution (Marketing)
 - 658.81 Sales management
 - 658.812 Customer relations
- 659 Advertising and public relations
 - 659.1 Advertising

#670 MANUFACTURING

- 670.4 Special topics
 - 670.427 Automation

#680 MANUFACTURING OF PRODUCTS

- 686 Printing and related activities
 - 686.4 Photocopying
- 687 Clothing and accessories
 - 686.04 General topics
 - 687.044 Tailoring

#700 THE ARTS

- 700.9 Historical, geographical, persons treatment
 - 700.92 Artists
- 709 Fine and decorative arts
 - 709.04 Fine and decorative arts 1900-1999
 - 709.042 Art Deco

#720 ARCHITECTURE

- 720.9 Historical, geographical, persons treatment
 - 720.92 Architects
- 724 Architecture from 1400
- 725 Public structures
- 727 Buildings for educational and research purposes
 - 727.8 Library buildings
 - 727.9 Community centers

#740 DRAWING AND DECORATIVE ARTS

- 741 Drawing and drawings
 - 741.6 Illustration

#770 PHOTOGRAPHY AND PHOTOGRAPHS**#770 RECREATIONAL AND PERFORMING ARTS**

- 792 Theater

#800 LITERATURE AND RHETORIC

- 801 Philosophy and theory
 - 801.9 Psychology
 - 801.95 Literary Criticism
- 808 Rhetoric
 - 808.5 Rhetoric of speech
 - 808.53 Debating
 - 808.8 Collections of literary texts
 - 808.81 Poetry
- 809 Authors

#900 HISTORY AND GEOGRAPHY

- 907 Education, research, related topics of history
 - 907.2 Historical research
 - 907.202 Historians

#910 GEOGRAPHY AND TRAVEL

- 910.9 Explorations, growth of geographical knowledge

#940 GENERAL HISTORY OF EUROPE

- 940.2 1453-1914
 - 940.25 1648-1789
 - 940.5 1918-1999
 - 940.53 World War II, 1939-1945
- 949 Other parts of Europe
 - 949.2 The Netherlands

#940 GENERAL HISTORY OF AFRICA

- 962 Egypt

PUBLIC püb'lik | *adjective*

1. Of, relating to, or affecting a population or a community as a whole.
2. Done, made, acting, etc., for the community as a whole.
3. Open to all persons.
4. Of, relating to, or being in the service of a community or nation.
5. Maintained at the public expense and under public control.
6. Open to the view of all; existing or conducted in public.
7. Pertaining or devoted to the welfare or well-being of the community.
8. Of or relating to all humankind; universal.

LIBRARY lī'brēr'ē | *adjective*

1. A place set apart to contain books, periodicals, and other material for reading, viewing, listening, study, or reference, as a room, set of rooms, or building where books may be read or borrowed.
2. A public body organizing and maintaining such an establishment.
3. A collection of manuscripts, publications, and other materials for reading, viewing, listening, study, or reference.
4. A collection of any materials for study and enjoyment, as films, musical recordings, or maps.

EXPLORATION ěk'splə-rā'shən | *noun*

1. An act or instance of exploring or investigating; examination.
2. The investigation of unknown regions.