

# 信息化世界城市中实体图书馆和数字图书馆的核心服务:来自实证的调查研究

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**摘要** 介绍:信息化城市的知识社会的典型。在信息化城市中,公共图书馆在知识基础设施建设方面正发挥着非常重要的作用。通过对 31 个不同信息化世界城市的调研,作者分析了他们各自公共图书馆的核心服务。

**方法:**作者通过对图书馆网站的内容分析,将图书馆服务分为两大类:数字图书馆服务和实体图书馆服务。

**结论:**大多数图书馆免费向读者提供电子资源,如电子书、电子期刊、书目数据库等。大多数图书馆也通过电子邮件和在线网页表单提交的方式提供在线参考咨询服务。图书馆也出现在各种社交媒体,如 Facebook、Twitter。在我们调研的图书馆中,几乎所有图书馆都将图书馆建筑作为城市的地标。图书馆是儿童及其他各类读者提供学习、会议、交流的场所。大多数图书馆在图书馆建筑内提供 Wi-Fi 服务,一半以上图书馆使用 RFID 技术。

**讨论:**在知识社会里,图书馆有两种核心的价值:(1)数字图书馆的核心价值:为该地区的公众、企业和政府提供数字服务,包括电子资源、参考咨询、通过社交媒体和读者进行交流等。(2)实体图书馆的核心价值:图书馆作为城市地标,为儿童及其他各类读者提供实实在在的物理空间,供读者会议、学习及工作讨论。

## Core Services of Digital and Physical Libraries in Informational World Cities—An Empirical Investigation

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**Abstract** Introduction. Informational cities are prototypical regions of the knowledge society. In informational cities, public libraries play important roles as parts of the knowledge infrastructure of those cities. For 31 identified informational world cities, we analyzed empirically the core services of their public libraries. Methods. As method we applied content analysis of the libraries' web pages. We divided the library services into two main groups, namely digital library and physical library. Results. Many libraries present e-resources (above all, e-books, e-journals and bibliographical databases) free of charge to their customers. Libraries offer digital reference services mainly via e-mail and web forms. Their appearances in social media are dominated by posts in Facebook and Twitter. Nearly all analyzed public libraries represent attractive architectural landmarks in their region. Besides children's spaces the libraries consist of physical spaces for learning and meeting and (to a lower degree) of modular working spaces. The majority of the libraries offer Wi-Fi inside their buildings; and more than half of all investigated libraries work with RFID technology. Discussion. There are two core values of the prototypical library in the knowledge society: 1<sup>st</sup> (core value of digital library): to provide citizens, companies and administrations in their city and their region with digital services, namely e-resources as well as reference services, and to communicate to their customers via social media; and 2<sup>nd</sup> (core value of physical library): to offer physical spaces for meeting, learning and working, as well as for children (and other groups) in a

building which is a landmark in the city.

## Introduction

In knowledge societies there exist or will exist typical cities, so called *informational cities* (Castells, 1989). What roles do public libraries play in such cities of the knowledge era? What are the core services of those libraries? In an empirical investigation, we analyzed libraries from 31 informational world cities.

This article is part of a larger research project on informational cities, located at the Dept. of Information Science at the Heinrich-Heine-University Düsseldorf (Germany). Beside our theoretical considerations on prototypical cities of the knowledge society (Stock, 2011a, 2011b, 2011c, Khveshchanka & Mainka, 2011; Mainka, Khveshchanka, & Stock, 2011; Linde & Stock, 2011, pp. 87—92) there are yet some empirical results on the nature of informational cities, e. g. about measuring informational world cities (Nowag, Perez, & Stuckmann, 2011), job polarization in informational cities (Dornstädter, Finkelmeyer, & Shanmuganathan, 2011) and about Singapore as a “prototype” of an informational city (Khveshchanka, Mainka, & Peters, 2011).

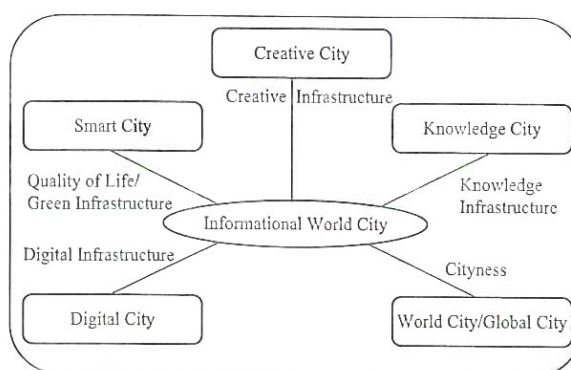


Figure 1 Infrastructures of an Informational World City

In our theoretical framework (Mainka, Khveshchanka, & Stock, 2011), we apply six groups of indicators of informational cities, which are interlinked with one another:

- Infrastructures (groundwork for digital cities, knowledge cities, creative cities and smart cities) (Figure 1),
- Cityness: Position in the world city hierarchy,
- Structure of the labor market (including job polarization and share of information professionals of the overall labor market),
- Mix of companies,
- Political willingness to establish an informational city,
- Weak location factors (e. g., leisure facilities, shopping malls, “architainment”).

In this paper, we concentrate on one aspect of the infrastructures. *Public libraries* play important roles in informational cities insofar they acquire documents containing knowledge, manage knowledge, and offer documents to all citizens, companies and administrations in the city. Additionally, they come with spaces, where people work (read and write), meet and learn. In our project and in the research literature as well, there is no doubt that “the public library is a community resource in most major cities” (Robertson, 2000, p. 246). We want to answer one simple research question empirically: Which core library services are needed in typical cities of the knowledge society?

Table 1 Informational world cities. (Note: applicable ✓, not applicable ✕)

	World / Global City	Knowledge City	Creative City	Digital City	Smart City
1. Amsterdam (The Netherlands)	✓	✓	✓	✓	✓
2. Barcelona (Spain)	✓	✓	✓	✓	✓
3. Beijing (China)	✓	✓	✓	✓	✓
4. Berlin (Germany)	✓	✓	✓	✕	✓
5. Boston (U.S.A.)	✓	✓	✓	✓	✓
6. Chicago (U.S.A.)	✓	✓	✓	✓	✕
7. Dubai (U.A.E.)	✓	✓	✓	✓	✓
8. Frankfurt (Germany)	✓	✓	✕	✕	✓
9. Helsinki (Finland)	✓	✓	✓	✓	✓
10. Hong Kong (China, SAR)	✓	✓	✓	✓	✓
11. Kuala Lumpur (Malaysia)	✓	✓	✓	✕	✕
12. London (United Kingdom)	✓	✓	✓	✓	✕
13. Los Angeles (U.S.A.)	✓	✓	✓	✓	✕
14. Melbourne (Australia)	✓	✓	✓	✓	✓
15. Milan (Italy)	✓	✓	✓	✓	✕
16. Montreal (Canada)	✓	✓	✓	✓	✓
17. Munich (Germany)	✓	✓	✓	✕	✕
18. New York (U.S.A.)	✓	✓	✓	✓	✕
19. Paris (France)	✓	✓	✓	✕	✕
20. San Francisco (U.S.A.)	✓	✓	✓	✕	✓
21. Sao Paulo (Brazil)	✓	✓	✓	✕	✕
22. Seoul (South Korea)	✓	✓	✓	✓	✓
23. Shanghai (China)	✓	✓	✓	✓	✓
24. Shenzhen (China)	✓	✓	✕	✓	✕
25. Singapore	✓	✓	✓	✓	✓
26. Stockholm (Sweden)	✓	✓	✓	✕	✓
27. Sydney (Australia)	✓	✓	✓	✓	✓
28. Tokyo (Japan)	✓	✓	✕	✓	✕
29. Toronto (Canada)	✓	✕	✓	✓	✓
30. Vancouver (Canada)	✓	✓	✓	✕	✓
31. Vienna (Austria)	✓	✓	✓	✓	✓

*Informational World Cities*

At the beginning of the informational city research it was obliged to figure out potential informational world cities. Figure 1 shows that an informational city joins different aspects of modern cities of the knowledge society. In the present project phase, we investigate world cities. An informational world city first of all has to be a world city based on the groundwork from Friedmann(1995), Taylor(2004), or Sassen(2001), where a world city is defined by its degree of "cityness". The number of residents by itself does not make a world city. Thereafter such a city also has to offer important infrastructures as they are given in a digital city (Yigitcanlar & Han, 2010), which is also called "ubiquitous city" by some authors(Hwang, 2009), a smart city(Shapiro, 2006; Hollands, 2008), a knowledge city(Ergazakis, Metaxiotis, & Psarras, 2004), and a creative city(Landry, 2000; Florida, 2005). The economic success of a world city correlates with an emerging human capital(Glaeser, Scheinkman, & Shleifer, 1995). Accordingly it is necessary for such a city to meet the needs of the knowledge society and bring up the important infrastructures to be able to compete with other world cities.

How could a real informational world city be defined? Two conditions should be met. First a city has to

be called world city in the literature, and second the city should be also referred to as digital, smart, knowledge, or creative city(at least one precondition must be fulfilled). All in all we analyzed 126 references. As listed in Table 1, we have found advices for 31 cities in the literature, that they are able to be recognized as informational world cities. These cities reflect global centers distributed over the world(Figure 2).

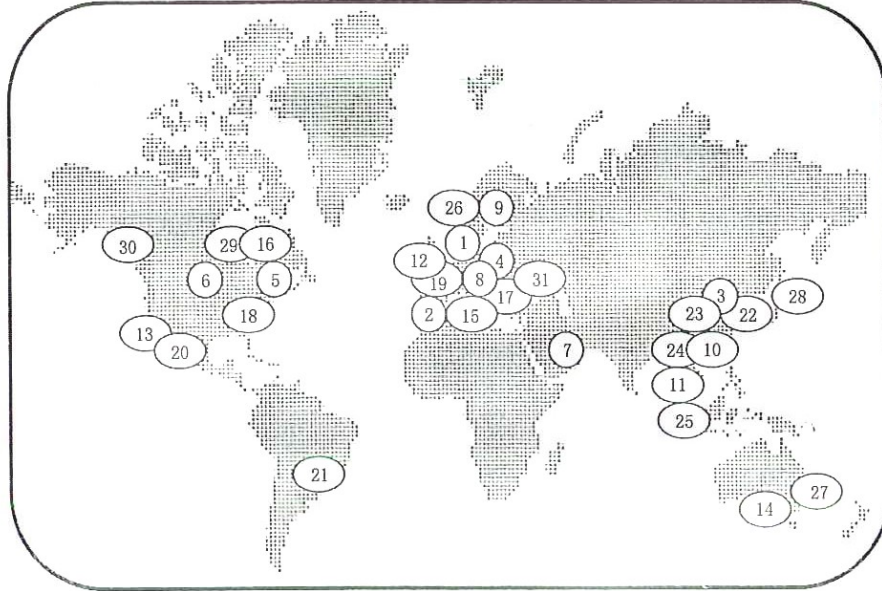


Figure 2 Informational world cities on the world map. (Note: cf. numbers in Table 1)

## Method

To figure out the tasks of public libraries which emerge with the increasing importance of the knowledge society, we investigated the public libraries of our 31 informational world cities. Public libraries are considered as important knowledge hubs and main components of the infrastructure of a knowledge city (Ergazakis et al., 2009; Merrick, 2009), a creative city (Stock, 2011a; Landry, 2000) and a smart city (Mackenzie, 2000). Informational cities leverage knowledge besides educational infrastructure, their government and their companies “by developing physical and digital public spaces that provide resources and opportunities for learning and interaction, they enhance community development and innovative collaboration” (Merrick, 2009). We have to emphasize that there are two spaces of knowledge distribution: the physical space and the digital space. Accordingly, we have to analyze these two spaces in public libraries.

For answering the research question, we investigated the digital and physical spaces of public libraries of the identified informational world cities. Because we were interested in the infrastructure of those cities, we turned our attention to the *offers* of the libraries. (Therefore, we did not analyze the use of the services.) Several issues of digital and physical library services, which are important in an informational world city, were reviewed. We analyzed the following services(Figure 3):

### 1. Digital library

- Website(in language of the country and in English),
- Web-OPAC(in language of the country and in English),
- E-resources (e-journals, e-books, digital images, audio books, music, e-magazines, videos, newspapers, bibliographic databases and other e-resources),

- Own digitized documents and collections,
- Are all e-resources free of charge for library members?
- Guides for the digital library(video guides, seminars, text documents, FAQs),
- Digital reference services(e-mail, SMS, web form, Skype),
- Social Media(blogs, Facebook, Twitter, Flickr, YouTube),
- Apps.

## 2. Physical library

- Library as architectural landmark,
- Spaces(for learning, meeting and working, spaces for children) and their attraction,
- Drinks and food in the library,
- RFID,
- Return of borrowed media everywhere possible,
- Wi-Fi,
- Library marketing.

### *Content analysis of library web sites*

As a method we applied the analysis of the content of the libraries' web sites. In some cases, if the website does not offer enough information, the library staff was contacted via e-mail. For all aspects, we calculated the percentage of libraries which consist of the special service. The results present (in a statistical sense) a prototypical public library in an informational world city. For every main aspect, we will illustrate an exemplary library which works in the particular aspect very well. The analyzed libraries respectively their websites are listed in the appendix.

### *Digital libraries*

The literature offers many definitions of digital libraries (Borgman, 1999; Levy, 2000; Meyyappan, Chowdhury, & Foo, 2000; Allard, 2002). Borgman(1999) and Levy(2000) integrate these definitions in two general aspects. On the one hand "[...] researchers focus on digital libraries as content collected on behalf of user communities [...]"(Borgman, 1999, p.229), on the other hand the digital library is identified as institution or service by librarians(Borgman, 1999; Levy, 2000). According to Oppenheim and Smithson, a digital library is an "information service in which all the information resources are available in computer processable form and the functions of acquisition, storage, preservation, retrieval, access and display are carried out through the use of digital technologies"(Oppenheim & Smithson, 1999, p.97). Digital libraries are distinguished from databases or information retrieval systems by their extensive content and functionality. They comprise electronic collections and are available over the internet (Thong, Hong, & Tam, 2004). These collections can consist of a variety of media in a digital form, here should be mentioned text, audio, image and video(Meyyappan, Chowdhury, & Foo, 2000). Note that a digital library does not only include the reference information like a traditional Web-OPAC. There are always also full-text materials (Stock, 2011a) and documents in non-text formats(Oppenheim & Smithson, 1999) available. With the emergence of digital libraries the responsibilities for librarians will change(Lor & Britz, 2011), namely the content of the e-resources is unpredictable and uncontrolled in contrast to the controlled acquisition and also controlled indexing of physical media.

In addition to Thong, Hong, & Tam(2004) who focused on different types of electronic media of a digital library, we analyzed the offers of e-resources of 31 public libraries. Therefore we checked whether the library provides access via Web-OPAC(in language of the country and in English) and to e-journals, e-books, digital images, audio books, music, emagazines, videos, newspapers and bibliographic databases. Furthermore special resources can be digitized by the library itself. So this aspect is also explored in the investigation.

Borgman describes digital libraries as a service and "[...] a set of tools and capabilities to locate,

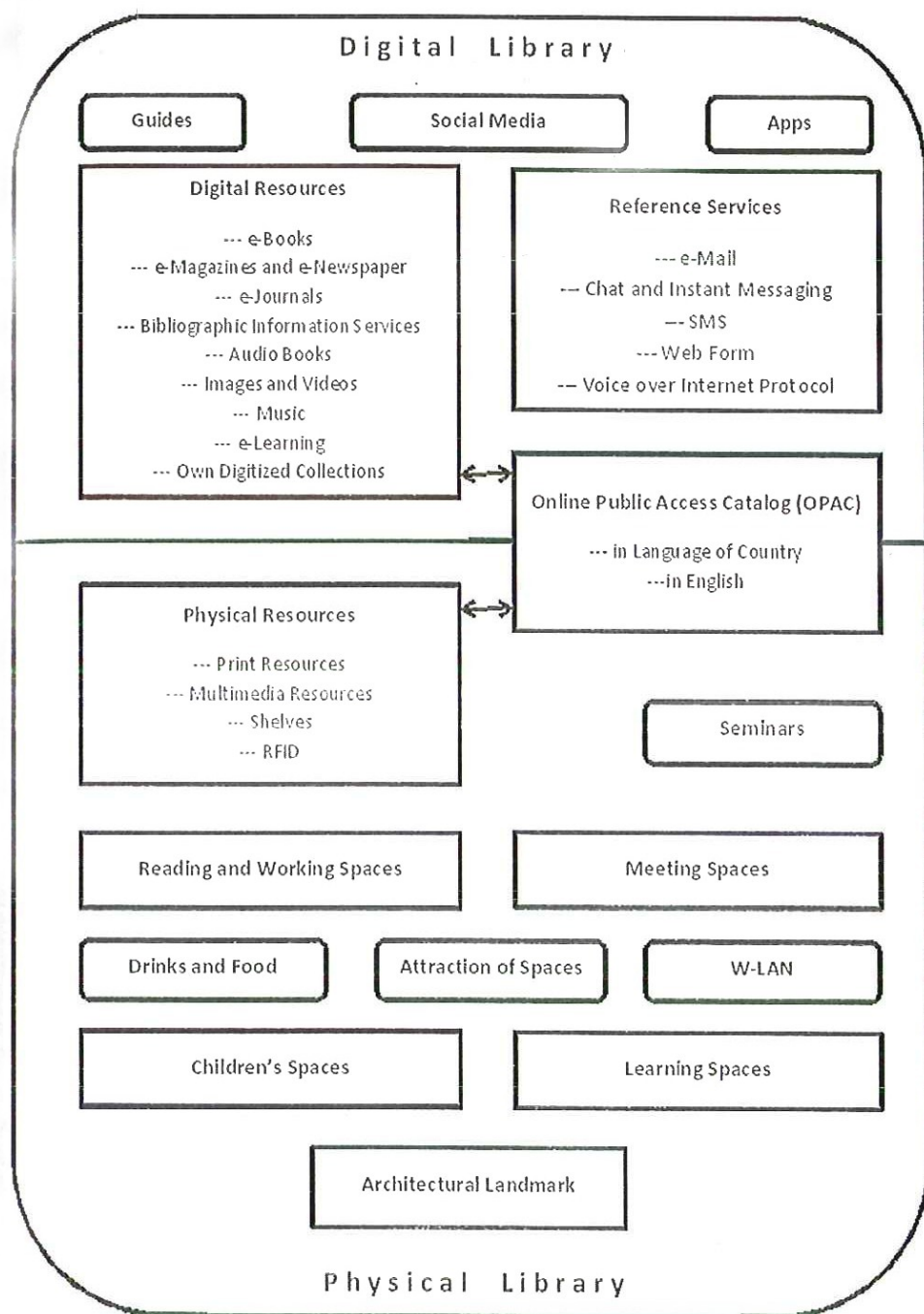


Figure 3 Core Services of Digital and Physical Libraries

retrieve and utilize the information resources available" (Borgman, 1999, p. 233). For this reason, we regarded if the library supports the user to apply the digital library by different guides. As a guide we defined the aspects video guides, seminars, text documents and frequently asked questions (FAQs). With the help of these guides the user should be provided by using the digital library and alleviate the handling of the interface,

because a simple handling of the system is important for the user(Thong, Hong, & Tam, 2004).

We also investigated the digital reference services. "Libraries offer telephone, email, and online chat alternatives" to help and provide the user, especially for users who apply digital libraries and are not physically present(Lesk, 2005, p. 219). On this account, we decided to investigate the utilization of digital reference services via e-mail, SMS, web form and chat or instant messaging. Moreover we have chosen Skype (a service using voice over internet protocol) as a channel of reference services instead of the traditional telephone to emphasize the digital character.

Current web technologies present personalization and portability by Social Media, also called Web 2.0. Through the use of elements of web 2.0, libraries have the opportunity to communicate and interchange with their users(Harris & Lessick, 2007; Anttiroiko & Savolainen, 2011). News, events or general information, e. g. opening hours, can be published straightforward via Social Media (Parkes & Walton, 2010). We analyzed library services on blogs, Facebook, Twitter, Flickr and YouTube.

"To stay relevant, libraries have to adapt changes such as the broad access to mobile phones"(Dresel & Kaur, 2010). Some libraries already provide reference services via SMS, and mobile technologies, including mobile applications, are growing (Murphy, 2010). Mobile applications (apps) offer a chance for communication and interacting with the user. There are several opportunities to deploy apps for libraries, for example as search and retrieval system or document viewing(Greenall, 2010). How far are apps already in use in the 31 public libraries?

#### *Physical libraries*

To analyze the physical library we investigated aspects like architecture of library buildings, different kinds of spaces as well as the attraction of them. Furthermore we took a closer look at the events and programs taking place at the library, in particular seminars on information literacy, and the marketing strategies.

McDonald(2006) refers to qualities of good library spaces and points out amongst other aspects that library space should be functional in terms of it lasts and works well, but also looks good. In the same way he suggests the space should motivate and inspire people(quality to be conducive) as well as having a 'wow' effect. Concerning the 'wow' effect the building should captivate and fascinate the contemplator. The relevance of the library building and its architecture is attended by the development of social life and creating a public sphere for the urban residents(Dahlkild, 2011). On account of this we theorized the architecture of the library building is one core value for the physical library in informational world cities.

Not only the exterior view of the building is relevant, we have also to focus on the interior design and the functionality by itself. Many researchers, students and other people look after a congenial place to study and work. Some important aspects are the lightning and big desks at the library(Cannell, 2007) but also other aspects that improve the attraction of the spaces(McDonald, 2006). Moreover the library should be a place where for instance students not only search for information but also "engage in a collaborative learning process"(Freemann, 2005, p. 5). McDonald(2006) holds the view that a variety of study environment should be offered due to the manifoldness of users such as the quiet reader who study independently as well as teams which work collaboratively on a project. The role of the library as an offerer of learning and studying place should be boosted(Mittrowann, 2011). Also modular working spaces are important to supply the different needs of the libraries' users. Furthermore through the adaptability of spaces the library can respond flexibly to changes(McDonald, 2006). What is crucial is the flexibility of the working rooms, so one can adapt the spaces according to the number of participating people or to the technical equipment which is required. The users also need some technical supports. For instance, Wi-Fi should be accessible in the library(McDonald, 2006). The users should have the chance to return the borrowed media everywhere. In this context it is also important to mention RFID(radio frequency identification; Singh, Brar, & Fong, 2006).

Corresponding to the library as a social space it should be regarded as a meeting place where communication between groups of people with different interests or similarities takes place(Cannell, 2007;

Aabo, Audunson & Varheim, 2010; Audunson, Essmat & Aabo, 2011). Referring to this aspect a place to eat and drink like a café can be a centerpiece and optimize the quality of the abidance(Cannell, 2007; Franz, 2011; Mittrowann, 2011), but also be a place for knowledge management and face-to-face communication in the library(Cannell, 2007). In addition we should keep in mind the children, too, and whether there is a place especially for them(Mittrowann, 2011), and the elderly (e. g., the reading clubs for Singapore's elderly; Luyt, Chow, Ng, & Lim, 2011) in the library.

Apart from that many libraries operate as a teaching library. For this the offer of seminars on information literacy is relevant as a core service for the physical library(Homann, 2003). Other factors that must be taken in account are the marketing strategies. Therefore we investigated aspects concerning the marketing of the libraries e. g. special programs and events or an interesting range.

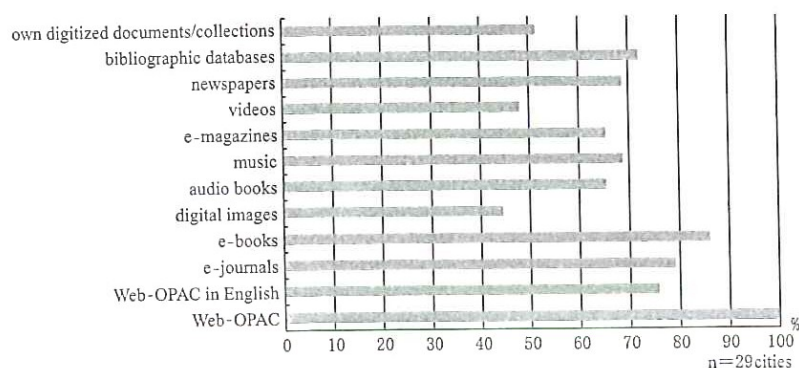


Figure 4 E-Resources in Informational World Cities' Public Libraries

## Results

### Digital library

Generally it can be stated that 84% of the analyzed public libraries have a website in English. Figure 4 shows the percentages for supply of the different e-resources. Note that only 29 libraries are integrated in these results, because we missed data of two libraries. It is conspicuous that almost all e-resources are used by 50% of the public libraries. Only videos and digital images are not as popular as e-books or other e-resources. Particular emphasis must be the *Capital Library Beijing* and the *Boston Public Library*, which offer all analyzed e-resources in their digital libraries. 76% of the analyzed public libraries allocated the databases their users at no charge.

According to Figure 4, a Web-OPAC is a must for a public library in an informational world city. It seems to be also important to offer the Web-OPAC in English. If there are special sources or collections in the city, some libraries conduct own digitization projects. 16 public libraries indicate that they digitize documents by their own.

Despite the high number of e-resources, Figure 5 indicates that guides for using the digital library are offered less. In this context can be mentioned the *Toronto Public Library*, which offers their users a variety of guides: video guides, text documents with screen shots, FAQ lists and seminars. Although only a few guides are used by the 29 analyzed public libraries collectively, *Toronto Public Library* provides them all.

If there are requests on documents or on special pieces of knowledge it is helpful to have possibilities to contact the reference librarians without going to the library buildings. Figure 6 describes the offer of the digital reference services via e-mail, chat or instant messaging, SMS, web form and Skype.

Skype is not available in the public libraries. Instead other forms of reference services are used including e-mail(74%), web form(55%), SMS(13%) and chat or instant messaging(26%). For example, the *New*



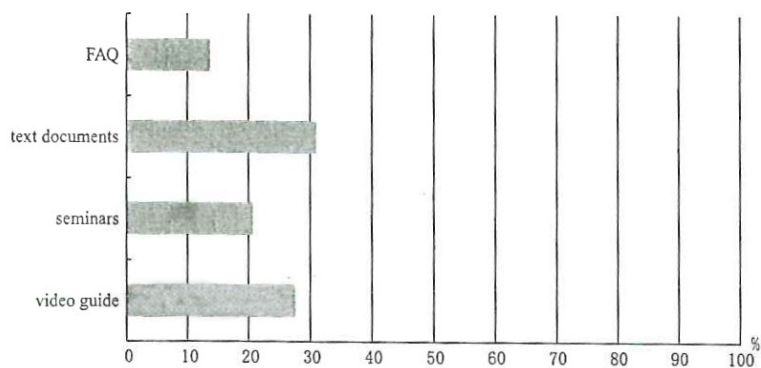


Figure 5 Guides in Informational World Cities' Public Libraries

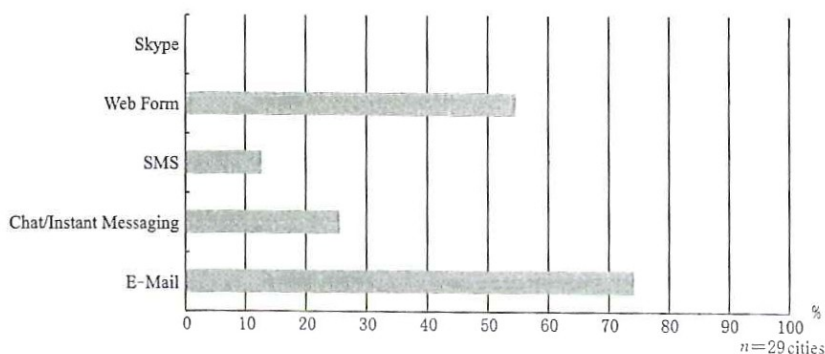


Figure 6 Digital Reference Services in Informational World Cities' Public Libraries

*York Public Library* represents a public library which supports all mentioned digital reference services. The other libraries use e-mail and web forms predominantly. In case that a library does not indicate their e-mail address, mostly web forms are supported.

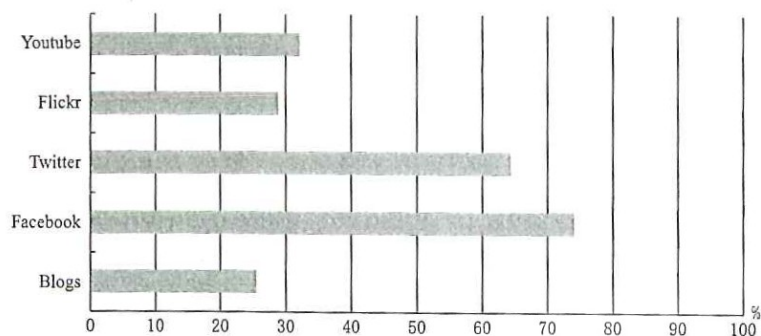


Figure 7 Applications of Social Media in Informational World Cities' Public Libraries

Applications of social media can advance the interaction between the library and the user. Figure 7 presents the five applications which stand in the foreground of the analysis of social media during the investigation. Particularly, YouTube(32%), Flickr(29%) and blogs(29%) are used by several libraries. Besides, Twitter (65%) and Facebook (74%) enjoy great popularity among the public libraries of the informational world cities. An impressive example is the *Openbare Bibliotheek Amsterdam*, which actively uses(amongst others) YouTube, Flickr, Twitter, Facebook and blogs.

In addition to the applications of social media the focus is now directed to mobile applications. Here can be stated that 13 of the 31 analyzed public libraries offer mobile apps. These mobile services are primarily used for access to the Web-OPAC, e-resources and user account. In the same way general information about the library are retrievable. The *Los Angeles Public Library* focuses on mobile applications. The app of this library provides the functions which have been just listed, the access to the Web-OPAC and the user account. General information is also available and displayable by the app.



Figure 8 The Library as an Architectural Landmark of an Informational World City: The Shanghai Public Library as a Paradigm. Photo: Art Rock(Hennie); Source: Flickr.

#### *Physical library*

We investigated different core services in the context of physical libraries. Starting with the architecture of the public library buildings it can be seen that almost every library of the informational world cities is an architectural landmark. Statistically speaking more than 9 out of 10 library buildings can be considered as an attraction of the city. A good example for such a building with a 'wow' effect one can name the *Shanghai Public Library* (Figure 8).

Other important aspects of the physical library are the interior spaces(Figure 9) and their attractiveness. Therefore we investigated the different kinds of use like spaces to learn, meet and work as well as special places for children. According to the statistics, the libraries have in approximately 77% of cases meeting and learning spaces for the library users. This is only exceeded by the spaces for children-in majority(94%) the

libraries offer special rooms for them or like *Shenzhen* a whole library aimed at the childish needs. Not so often the libraries possess modular working spaces which can be adapted to the requirements of meeting groups. Not even in the half of the investigated libraries are these kinds of room available. The same value reached the places in the library for eating and drinking like a cafeteria. Totally, only 42% of the libraries offer the possibility to have a snack in the space of the building. Regarding spaces, we would like to refer to the *National Library of Singapore* which combines most of the presented core physical library services.

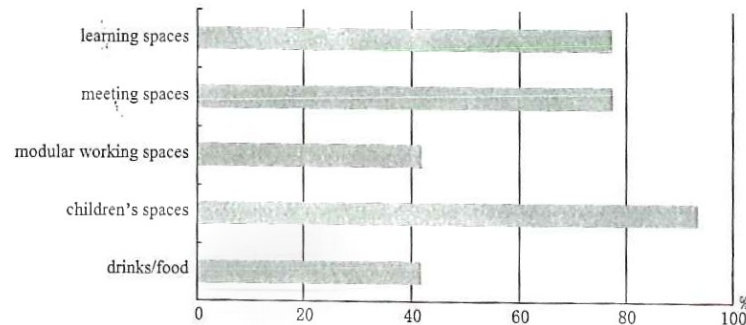


Figure 9 Spaces in Informational World Cities' Public Libraries

Furthermore in many cases we found activities which improve the attraction of the spaces by for instance designer furniture or reading lounges. Two good examples are the libraries of *Openbare Bibliotheek Amsterdam* and *Biblioteca de Sao Paulo*. The public library in Amsterdam offers the user amongst others designer furniture, a roof terrace and a piano in the lobby at which visitors can practice. Sao Paulo sticks out through the comfortable reading area with a lot of armchairs and cushions as well as the green space in the immediate vicinity.

In addition there are also technologies which attract the user. First of all there must be mentioned Wi-Fi. In every investigated library wireless Internet is available—only one exception must be named, which is Singapore. But the reason for this is that the whole city is connected by Wi-Fi, so the library has not to offer its own internet access. To cope with the mobility of the users another core service is the chance to return the borrowed media everywhere in the city. Totally, more than 60% of the libraries enable this possibility to their users. Not even much less libraries have already installed RFID in their collections (ca. 55%).

Finally, we focused on the marketing strategies and the seminars on information literacy. Most of the libraries take their role as a teaching library seriously. In two-thirds of the cases in the libraries are information literacy programs in form of seminars available where the users e. g. learn how to read up on information or to use the computer and online services reflectively. Taking the marketing strategies into account one can notice a great diversity. The variance goes from online marketing like special sites for children, teenagers or immigrants over services for elderly and disabled persons (library busses or delivery services) to events and attractions on location for example guided tours, exhibitions as well as book and gift shops.

## Discussion

### Conclusion

We opened this paper by asking which core services are needed in a public library. At this point we sum up which services are given in an averaged informational world cities' library. The average library has a digital library which consists of the following e-resources: e-journals, e-books, audio-books, music, e-magazines, videos, newspaper and bibliographic databases. In addition to this the library digitizes own specialized

collections and allocates them to the users. The databases could be accessed free of charge for cardholders. Furthermore there are guides for the digital library whereupon the forms of these guides are diversified. To use the reference services in the typical library of an informational world city one can write an e-mail or use the web form. Concerning the online presence the library has next to the national language a website in English. This applies also to the Web-OPAC. Moreover, social media is relevant for the library; it uses Facebook and Twitter to communicate with its users. Focusing on the library as a place the building is an architectural landmark and it offers learning and meeting rooms as well as spaces especially for children. What more to be named in the averaged library are the possibilities for the visitors to use Wi-Fi and to return the borrowed media everywhere-in context to this the library has also RFID. Last of all, there are also seminars on information literacy taking place at the library.

Founding the core library services, there is a special value system in libraries of informational world cities. We believe that there are two core values of the prototypical library in the knowledge society: 1<sup>st</sup> (core value of digital library): good libraries provide citizens, companies and administrations in their city and their region with digital services, namely e-resources as well as reference services, and communicate to their customers via social media; and 2<sup>nd</sup> (core value of physical library): good libraries offer physical spaces for meeting, learning and working, as well as for children and other groups in a building which is a landmark in the city.

#### Outlook

Finally, we concentrate on prospective perceptions of the digital and physical libraries. The offers of the e-resources in the digital library are very expensive. To realize huge amounts of subscriptions of e-books, e-journals, etc. all libraries in a city should cooperate. Going into detail with this thought not only public libraries but also academic, special and national libraries could convene and offer their stock together (this idea is inspired by the "franchised model" by Wah and Choh, 2008). The digital library does not know any physical spaces and the user does not care which library serves him the document-he is just interested in getting the information. This leads us to the conclusion that the cooperation between different kinds of libraries would support the user in his information demand. Furthermore the accruing costs could be divided by the participating libraries.

Focusing on physical libraries one must adhere that with the growth of the digital library the library as a building and as a place has to find new ways to attract the users to leave their computers at home and use the library on location. This aspect is enforced by the fact that there are now (with regard to emerging amounts of digital resources) fewer shelves with books and journals. Maybe the answer is that not the print versions of media should convince the users but the spaces and the events taking place at the library. We already researched some examples for these attractions like spaces to meet each other, to learn together or to compare notes. Possibly the physical library lies ahead as a place of exchange that entices by the attraction of the spaces and the activities e. g. expositions and author readings as well as helpful seminars. Open questions are, however, how to attract the creatives and the knowledge elites to the library, how to bind the children and young adults, especially the generation of Google, Wikipedia and Facebook users, sustainable to the library spaces, and how to convince that knowledge management (Hayes, 2004) must take place at the level of the city.

To sum up, our study serves as a window to an understanding of the digital and physical library spaces as important infrastructures in informational world cities and how the libraries perhaps could improve those core services. Informational cities are often called "ubiquitous cities". Do libraries in the knowledge society emerge as ubiquitous libraries?

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#### Appendix: Analyzed Libraries (Web Sites)

Amsterdam      Openbare Bibliotheek Amsterdam