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# 12 The Use of LAM Institutions in the Digital Age

## Introduction

Amidst much speculation on the impact of digitalization, there have been no lack of visions for the future of libraries, archives, and museums (LAM institutions). Sometimes digitalization has been perceived as a useful tool for fulfilling the aims of enlightenment and free access to information and cultural heritage, and other times the digital development has been framed as a threat or game-changer for the LAM institutions. In this chapter, we present empirical data on the use of digital LAM services, and we elucidate how users relate to digital LAM services and LAM services in general. We think the present-day use of digital LAM services is a good indicator of where LAM institutions are heading in the coming years, and relevant for LAM-policy development in government and the institutions. This way, we bring data on digital use, and perhaps some realism to the never-ending debate on the future of LAM institutions. Important questions are: what does digitalization of user services in libraries, archives, and museums (LAMs) mean for patrons – do patrons use the digital services offered by the LAM-institutions? Which digital services are used? What are they used for?

We analyze how user characteristics, such as country, gender, age, education, income, urban/rural, immigration status, and home Internet access correlate with the digital service usage in LAM institutions. By comparing patterns of use as reported by users in six European countries, we examine variation in patterns of digital use between the countries. Do differences indicate different trajectories of development towards multiple LAM futures, or do they indicate national LAM systems on different stages of development towards a shared future of LAM use? The lack of time-series data makes it difficult to conclude on whether national systems have changed and how they have changed, and calls for future data collection, preferably at five-year intervals. At this point, we present data from a survey to representative samples of the Hungarian, Swiss, German, Danish, Swedish, and Norwegian populations conducted in June 2017. The national samples vary from 1,002 respondents up to 1,021. Altogether, we have 6,050 respondents (see Audunson et al. (2019) for more information about the data collection process). This analysis is based on quantitative and qualitative data on digital use from the survey.

First, the chapter contains a review of professional and scholarly debates on LAM institutions and digital development; second, a presentation of the findings

from the survey on the use of digital services in LAM institutions; third, a presentation of free-text analysis of the user responses on content accessed and activities engaged through digital LAM services; fourth, based on the findings we discuss the relevance of the LAMs as digital public sphere institutions today and implications for future LAM adaptation in the digital age.

## Digital Debates in LAM Institutions

The former chair of the German Library Association, Claudia Lux, wrote in 1994 a paper with the title *Vom Bibliothekar zum Cybrarian – die Zukunft des Berufs in der virtuellen Bibliothek* (From Librarian to Cybrarian: the Future of the Profession in the Virtual Library), where she tried to outline a virtual library in the future – a never closing library for everyone with instant access to digital books (Lux 1994). Following the same line of thought, the digital impact was discussed in the museum field. One example from 1999 is the former managing museum director Steve Dietz's text *Cybermuseology: Taking the Museum to the Net/Bringing the Digital Media to the Museum* (Dietz 2014). According to Dietz, the new technology could be a catalyst for the "museum's migration to the Web". On a general level, Lux and Dietz share the common notion that the physical LAM-institution more or less would dissolve in cyberspace.

Although early adopters to new technology, a certain concern connected to digitalization has been present ever since the spread of the microchip in the late 1970s. At that time, the concern was associated with the question of whether the chip would replace the librarian (Jochumsen and Hvenegaard Rasmussen 2006). Later, when the use of the Internet arrived in the early 1990s, the question was whether the Internet actually would replace the physical library. At the same time though, library professionals also recognized that digital development meant a new and significant role for public libraries. Thus, the public libraries could contribute to the digital empowerment of the citizens and thereby reduce the risk of an A- and B-team regarding IT-competencies, closing the digital divide. As we know today, neither the physical library nor the librarian was replaced by cyber services. The librarian is still in demand, and libraries are still being built all over the world. What has happened is that the role of both the librarian and library has changed and that the possibilities of the physical library have been replenished by different Internet-founded offers (Jochumsen, Hvenegaard Rasmussen, and Skot-Hansen 2012). At the same time, public libraries still play an important role as providers of access to the Internet and as supporters of the digital skills of individual citizens.

The fear of digitalization has not been present to the same degree among professionals in the two other LAM-institutions. In a study carried out by Eva Pina Myrczik, in which she reviews and reflects on the factors defining the expected benefits that have influenced the implementation of digital initiatives in public-funded museums over the course of the last 20 years, we see a gradual development. Myrzcik identifies three different phases. The first phase was concerned with making digitized cultural heritage accessible, the second was characterized by a more individualized museum mediation that took the visitors' background and needs into account, and the third and present phase is about including and engaging the users of the museums, or user participation (Myrzcik 2018).

Thus, it seems reasonable to state that while the digital development internally in the library field has been seen more or less as a threat to the very existence of the librarian and the physical library, in the museum field it has rather been seen as an add-on supporting the museum experience for the visitors. It might also be reasonable to assume that this difference among other factors has to do with the fact that the museum contains an original, which cannot be replaced by any Internet offering. The library, on the other hand, has services, which often can be replaced by content found on the internet. However, as stated by the British expert in library architecture Brian Edwards: "IT does not destroy the library but liberates it into providing new kinds of public services attracting a potential new audience" (Edwards 2009, xiii). On the same note, we see that lending figures are decreasing, but the number of visitors is stable in a Nordic context. In Norway, the number of visitors is slightly increasing. In Denmark, the same numbers are stable, while the figures show a slight decrease of visitors in Sweden and Finland.[1]

In archives, we see a development in which digitalization by many professionals is seen as a great potential for boosting the use of the archives and for developing the archives through user participation. The Canadian archivist Terry Cook (2013) argues that archival paradigms over the past 150 years have gone through

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[1] In Norway, between 2012 and 2017, the number of books lent per capita shrank from 4.9 to 4.1 (17.2%), while visits per capita increased from 4.1 to 4.6 (11.2%) (https://kunnskapsbase. bibliotekutvikling.no/statistikk/statistikk-for-norske-bibliotek/folkebibliotek/historisk-statistikk-for-folkebibliotek/). In Denmark, between 2012 and 2017, the number of book lent per capita shrank from 7.5 to 5.1 (32%), while visits per capital were approximately 6.5 in both 2012 and 2017. These figures are based on calculations from Statistics Denmark (https://www.dst.dk/da). In Sweden, between 2012 and 2017, the number of books lent per capita shrank from 7.1 to 6.1 (14.1%), while visits per capita decreased from 7.0 to 6.3 (10%). (https://www.kb.se/samverkan-och-utveckling/biblioteksstatistik/hamta-ut-statistik/statistikrapporter.html#item-42705879d169b8ba882a1ccf). In Finland, between 2012 and 2017, the number of books lent per capita shrank from 12.7 to 12.0 (5.5%), while visits per capita decreased from 9.6 to 9.1 (5.2%) (https://tilastot.kirjastot.fi/?show_year=0).

four phases: from juridical legacy to cultural memory to societal engagement to community archiving. Especially among the later paradigms, digitalization has been perceived as a driver for the development of the archives. On the one hand, the digitization of archival documents has improved the public's access to archives (Bolick 2006). On the other hand, the public have not only been passive users of archival services, but the users have also been participating in archival activities. Crowdsourcing, where some of the archival workloads are outsourced to the public, is an example of this. It can be huge digitization projects, where volunteers are the primary workforce in transcribing physical documents or adding contextual knowledge to pictures and more (Oomen and Aroyo 2011). Concerning the archives, digitalization cannot be described as a tough challenge as for the libraries or as a supplement to the physical museum. Rather, digital development primarily has been perceived as a possibility, notably among archivists dealing with societal engagement and community archiving. One example is the book of the Nordic Archival Conference in 2015, where digitalization is described as the main driver for transforming the archives from passive collections towards more user-driven institutions (Hosar et al. 2016).

### Digital Development in LAM Institutions

As shown above, the relationship between digitalization and professional development in the LAM-field seems to have varied from institution to institution. Looking at the LAM-field as a whole, the ongoing digitalization has not only been a tension between "bricks" and "clicks", where tradition-bound professionals have struggled for physical institutions and collections, while a digital avantgarde prophesied the death of the physical LAMs. Over time, digital development has proved much more diverse. However, there are some common characteristics of digital development in libraries, archives, and museums. Inspired by Myrcik (2018), we will describe the digital development departing from three headlines: Digital information about institutions, Digital access to content, and Digital participatory culture.

### Digital Information About the Institutions

In the wake of the Internet, an obvious digital extension of the LAM services was to create homepages for the institutions. The Danish National Museum was the first museum to have a website in 1996, which communicated general information about the institution (Myrczik 2018). These early webpages have been de-

nominated as "brochures" or "business cards" because the main function was to give basic information about the museum, such as types of collections and opening hours (Schweiber 2004). Among libraries (Cohen and Still 1999) and archives (Cox 1998), this kind of homepage became normal in the late 1990s. According to an IFLA-paper dealing with the Internet in everyday library use, 110 Finnish public library homepages were operative in the spring of 1997 (Jokitalo 1997). A quick overview of the research literature on LAMs' use of social media shows that libraries and museums' primary use of Facebook is as a collection of "brochures" communicating general information about the institution (Fletcher and Lee 2012; Aharony 2012; Skare 2018, 2019). Also, the use of social media in general, in relation to LAMs, is limited to a small number of users. Based on this conclusion, it is reasonable to assume that Facebook users visiting LAM-webpages mostly do it to gain information rather than participate in different kinds of activities.

**Digital Access to Content**

Although the LAM-institutions' first homepages primary consisted of information about the institutions, some of the websites also gave access to more or less of the institutions' collections. The Danish National Museum's website also hosts a special digital exhibition: *Guder og Grave* (Gods and Graves), which contains 450 selected objects from the Danish bronze age. Normally these objects were seldom accessible for users; they were kept in a storeroom with no public access.

The distribution of the Internet was a catalyst for digitization projects in all three types of LAMs. For modern libraries and museums, providing access to knowledge and cultural heritage has always been an inevitable task (Brown and Davis-Brown 1998), and digital development improves access to LAMs' collections. As mentioned, for archives, digitalization has provided a significant opportunity to reach a larger audience. In the past, archives were a caretaker of administrative and legal records, also providing citizen access to public documents, preserving historical sources for scholars. Starting with the political radicalization of the 1970s, they have sought a broader audience, and digital technology has supported the democratization of the archive as a societal resource (Bolick 2006).

Different kinds of communication or mediation of content can be perceived as an extra dimension created by digital access to the LAMs' collections. For instance, the 450 selected digitized objects in Gods and Graves were surrounded by different kinds of information about the Bronze Age and archaeological excavations. According to Myrczik (2018), this type of digital exhibition has been normal in Danish museums since the millennium. In a Danish library context, Litter-

atursiden.dk is not a digital access point for fiction, but a website with different kinds of information on fiction, e.g. book reviews. Bokcirklar.se is a community helping readers interested in virtual book discussions to get in contact with fellow readers for organizing virtual reading communities. It is run by some of the Swedish county libraries. Digital services such as Litteratursiden.dk and Bokcirklar.se raises the question: are the users aware that they are using a library service?

### Digital Participatory Culture

The third characteristic of the ongoing digitalization of LAMs is an increasingly participatory culture both outside and inside the LAM institutions. According to the American media scholar Henry Jenkins (2005), the development of the social media has been a major driver in participatory culture, because the barriers for artistic expression and civic engagement have been lowered. Today, it is easier to produce, share, remix, and comment on artistic expressions and other kinds of content. This tendency is not only identifiable on civic sites on the Internet, but there is also a participatory turn in western cultural policy (Bonet and Négrier 2018), which also appears within the LAM field. Participation has been a buzzword for more than a decade (Huvila 2008; Simon 2010; Lankes, Silverstein, and Nicholson 2007).

Furthermore, the participatory turn in LAMs is a complex phenomenon; it both takes place in a digital and physical setting, and the activities can be different. It can range from book clubs through interactive communication to crowdsourcing. In particular, the archives have used crowdsourcing for digitization projects and enriching collections. Sometimes crowdsourcing solves insurmountable digital tasks for the archives, while crowdsourcing on other occasions is a time-consuming way to reach out to new users. Also, crowdsourcing and other forms of participation are heavily discussed within all LAMs (Eveleigh 2014). Thus, seen from the inside of the LAM institutions, participation is a hot issue, but how do the users perceive and use participatory LAM activities in a digital context?

## The Digital Use of LAM-institutions

### Visiting Libraries, Archives, and Museums in the Digital Age

In this section, we follow up on the LAM professional and scholarly debates in the digital age, in the context of the use of digital services provided by libraries, ar-

chives, and museums. We present findings (quantitative data) on reported digital visits versus physical visits to the institutions and display the variation in types of visits between the six countries surveyed relative to the user demographic characteristics: age, gender, immigrant or native, education, home Internet access, urban/rural, and income.

**Digital or Physical Library Visits?**

In 2017, 40.5% of the survey respondents in Denmark, Germany, Hungary, Norway, Sweden, and Switzerland usually visited public libraries only by foot or on wheels; that is, they visited the library building in person (Table 12.1), while 14% visited only digitally through connections to the Internet. However, one quarter in the sample both sometimes visit the library digitally from home and sometimes physically visit the library premises. 20.8% say they do not visit libraries.

**Tab. 12.1:** How do you usually visit the public libraries?

|  | Frequency | All % | Users % |
|---|---|---|---|
| Physically | 2,450 | 40.5 | 51.1 |
| Internet | 847 | 14.0 | 17.7 |
| Both | 1,493 | 24.7 | 31.2 |
| Never | 1,260 | 20.8 | N/A |
| *Total* | *6,050* | *100.0* | *100.0* |

These results mean that people at least in the six countries still physically visit public libraries for library services. Not more than 14% of all the respondents in the survey only access libraries electronically from locations outside the library itself, while 65.2% only visit physically, or visit physically and by digital devices. Library users are more frequent visitors, 17.7% visit only digitally, while 82.3% visit physically or both physically and digitally.

**Archives**

What about archives? From Table 12.2, we can read that more people exclusively visit archives electronically (24%) than by paying a physical visit (12.7%), 10.6% visit in both ways, and 52.7% never visit archives. Among users of archives, 73.2% either use the archive only electronically, or visit both digitally and in person.

Digital archive visits are more popular than physical visits. More than half of the users of archives visit only digitally. Archival use is more in line with the early digital age expectations compared to libraries.

**Tab. 12.2:** How do you usually visit archives?

|           | Frequency | All % | Users % |
|-----------|-----------|-------|---------|
| Physically | 767 | 12.7 | 26,8 |
| Internet | 1,453 | 24.0 | 50.8 |
| Both | 641 | 10.6 | 22.4 |
| Never | 3,189 | 52.7 | N/A |
| *Total* | *6,050* | *100.0* | *100.0* |

## Museums

Museums are visited digitally by 8.5% of people in the six country sample taken together, while 55.1% visit physically. 14.1% visit museums both digitally and physically, and 22.2% in the sample never visit museums in either way. These relatively low scores for digital use are in line with expectations of the digital museums as an added value to physical collections; they are an add-on rather than a replacement for buildings and for experiencing physical museum objects.

**Tab. 12.3:** How do you usually visit museums?

|           | Frequency | All % | Users % |
|-----------|-----------|-------|---------|
| Physically | 3,336 | 55.1 | 70.9 |
| Internet | 516 | 8.5 | 11.0 |
| Both | 855 | 14.1 | 18.2 |
| Never | 1,343 | 22.2 | N/A |
| *Total* | *6,050* | *100.0* | *100.0* |

Comparing digital use of the three different types of institutions among all respondents (Table 12.4), 28.9% of respondents have used public library digital services in the last 12 months, 9.9% have used archival digital services, while 21.6% have used digital museum services.

Concluding this section on digital and physical visits to libraries, archives, and museums, we can state that:
1. Digitalization does not (at least not for now) seem to replace traditional library services, as still more than half of the library users (51.1%) visit only through physical visits, while the percentage of users visiting libraries only physically or both physically and digitally taken together is as high as 82.3%, while digital-only visitors represent 17.7% of library users.

2. Digitalization means unleashing the potential reach of archives, more than half of users visit only digitally, 50.8%. 73.2% of archive users visit either only digitally or visit both digitally and physically.
3. Digitalization seems to be an add-on and represents a supplemental service for museums rather than posing any threat to physical visits; still, 11% of users visit museums through digital channels only.

### LAM Digital Use in the Six Countries

An important question in this chapter is if, and then how, digital use varies by country. Do we in the data see a reproduction of the general North–South cultural divide between European countries (Rokkan and Lipset 1967), which is reflected in the level of national library spending (Vårhem et al. 2008)? Are there age gaps, gender gaps, education, immigration, income, and rural/urban gaps, and if so, how do they play out?

Danes in the sample use digital library services more than the inhabitants in any of the five other countries; 39.7% of Danes used digital services at least one time during the last 12 months (Table 12.4).[2] Germans respondents were the most infrequent users; 19% used digital services. The three Scandinavian countries had the highest numbers of digital users, while 26.3% of the Hungarians surveyed visited a library digitally during the last year. The divide in library spending between the north and the south is partly reproduced in these figures. The northerners are the most eager of digital users, but it is perhaps surprising that German and Swiss usage among respondents is lower than in Hungary. These three countries have the lowest usage levels for digital library services.

Norwegian respondents use archival digital services the most, some 12.9%, while the Swedes, the Swiss, and the Danes follow closely. Germans are the most infrequent users of digital services in archives, 6.9%, and Hungarians use these services marginally more often than the Germans.

For the use of digital services in museums, we see a different pattern, with the Danes (24.4%) and the Swedes having the highest numbers, but only marginally ahead of Switzerland with 24.1%. Following closely, in Hungary and Norway, about 20% of the museum visitors sampled have used digital museum services in the last twelve months, while German museum users are the least tech-savvy, when it comes to the use of digital museum services.

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**2** In Sweden and Norway, the survey question for libraries was formulated somewhat differently from the other countries in that it was asked for the use of digital services "in the library". In the four other countries, the question was whether the respondent had used "digital library services". However, this difference in wording does not seem to have had a significant impact on the data.

**Tab. 12.4:** Use of Libraries, Archives, or Museum Digital Services during the last 12 months according to age (percentages)

| Country | Institution | *N* | 18–29 | 30–39 | 40–49 | 50–59 | 60+ | Total |
|---|---|---|---|---|---|---|---|---|
| Denmark | Library | 905 | 37.4 | 37.2 | 42.2 | 41.4 | 39.7 | 39.7 |
| | Archive | 905 | 5.8 | 7.4 | 7.2 | 8.9 | 16.2 | 10.2 [b] |
| | Museum | 905 | 14.6 | 19.8 | 22.3 | 28.7 | 31.0 | 24.4 [b] |
| Sweden | Library | 894 | 29.8 | 39.1 | 30.8 | 34.3 | 35.3 | 34.0 |
| | Archive | 894 | 8.8 | 8.7 | 9.9 | 16.3 | 15.4 | 11.9 [a] |
| | Museum | 894 | 22.8 | 19.6 | 19.8 | 26.5 | 31.3 | 24.2 [a] |
| Norway | Library | 900 | 43.1 | 25.2 | 27.5 | 31.9 | 26.1 | 30.7 [b] |
| | Archive | 900 | 8.5 | 5.4 | 18.1 | 8.5 | 19.4 | 12.9 [b] |
| | Museum | 900 | 16.0 | 19.0 | 25.7 | 20.6 | 21.3 | 20.6 |
| Germany | Library | 815 | 32.4 | 22.1 | 17.7 | 10.6 | 15.9 | 19.0 [b] |
| | Archive | 815 | 6.9 | 7.6 | 6.1 | 2.8 | 10.8 | 6.9 [a] |
| | Museum | 815 | 13.1 | 13.0 | 18.3 | 12.2 | 19.0 | 15.3 |
| Switzerland | Library | 858 | 32.8 | 15.9 | 20.1 | 22.7 | 21.2 | 22.3 [a] |
| | Archive | 858 | 13.7 | 4.0 | 9.0 | 12.9 | 10.6 | 10.3 [a] |
| | Museum | 858 | 19.8 | 24.5 | 18.7 | 24.9 | 29.0 | 24.1 |
| Hungary | Library | 902 | 30.5 | 20.4 | 23.7 | 21.3 | 33.3 | 26.3 [a] |
| | Archive | 902 | 5.4 | 8.3 | 6.8 | 5.2 | 9.0 | 7.1 |
| | Museum | 902 | 16.8 | 13.8 | 19.2 | 22.6 | 27.5 | 20.3 [b] |
| *Total* | *Library* | *5274* | *34.6* | *26.7* | *27.2* | *26.4* | *29.2* | *28.9* [b] |
| *Total* | *Archive* | *5274* | *8.0* | *7.0* | *9.6* | *9.3* | *13.9* | *9.9* [b] |
| *Total* | *Museum* | *5274* | *17.2* | *18.3* | *20.7* | *22.6* | *26.7* | *21.6* [b] |

Pearson's Chi-Square [a] $p \leq 0.05$
[b] $p \leq 0.01$

For archives and especially for museums, the North–South Europe divide in use of digital services is less pronounced than for public libraries, while Germany consistently lags behind the other countries for digital service usage.

**LAM Digital Use in the Six Countries According to Age Distribution**

In the sample of the six countries, the youngest, the 18–29, age group are the most frequent users of digital library services, with 34.6% having used digital services in the last year, while the 50–59 age group are the most infrequent users, some 26.4%.[3] There are statistically significant differences in reported use of LAMs be-

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**3** 12.3% (776) of respondents have not answered the questions on digital use of the three services. Also, for the other variables some values are missing. This explains the variation in N between countries.

tween age groups in Norway, Germany, Switzerland, and Hungary (Pearson's Chi-Square Test). For example, in Germany, 32.4% of the youngest age group use digital services, compared to 10.6% of the 50–59-year-olds.

Among users of digital services in archives, the differences between age groups are greatest in the Scandinavian countries, for example in Norway where 8.8% in the youngest group are users, while 19.4% are users in the oldest age group, 60+. Switzerland shows the opposite pattern of all the other countries, where 13.7% of the youngest use digital services in archives, while this is only 10.6% in the oldest age group. For the use of digital services in museums, we see the same pattern of age distribution in all countries; seniors use digital museum services significantly more than juniors.

**Tab. 12.5:** Use of Library, Archives, or Museum Digital Services during the last 12 months according to gender (percentages)

| Country | LAM-institution | N | Male | Female | Total |
|---|---|---|---|---|---|
| Denmark | Library | 905 | 31.3 | 47.5 | 39.7 [b)] |
| | Archive | 905 | 12.8 | 7.7 | 10.2 [a)] |
| | Museum | 905 | 22.1 | 26.4 | 24.4 [b)] |
| Sweden | Library | 892 | 26.6 | 41.9 | 34.0 [b)] |
| | Archive | 892 | 10.4 | 13.5 | 11.9 |
| | Museum | 892 | 22.5 | 26.0 | 24.2 [a)] |
| Norway | Library | 898 | 25.8 | 35.5 | 30.7 [b)] |
| | Archive | 898 | 14.9. | 10.7 | 12.8 |
| | Museum | 898 | 18.6 | 22.4 | 20.5 |
| Germany | Library | 814 | 17.9 | 20.1 | 19.0 |
| | Archive | 814 | 8.6 | 5.2 | 6.9 [a)] |
| | Museum | 814 | 17.4 | 13.3 | 15.4 |
| Switzerland | Library | 858 | 19.4 | 25.3 | 22.3 [a)] |
| | Archive | 858 | 11.4 | 9.1 | 10.3 |
| | Museum | 858 | 23.7 | 24.6 | 24.1 |
| Hungary | Library | 901 | 24.0 | 28.2 | 26.3 |
| | Archive | 901 | 6.2 | 7.9 | 7.1 |
| | Museum | 901 | 16.9 | 23.5 | 20.3 [b)] |
| *Total* | *Library* | *5268* | *24.3* | *33.4* | *28.9* [b)] |
| *Total* | *Archive* | *5268* | *10.8* | *9.0* | *9.9* [a)] |
| *Total* | *Museum* | *5268* | *20.3* | *22.9* | *21.6* [b)] |

Pearson's Chi-Square [a)] p ≤ 0.05
[b)] p ≤ 0.01

### LAM Digital Use in the Six Countries by Gender

In the sample, women are much more active digital users than men in libraries, 33.4 compared to 24.3%; in museums, women are slightly more active, but in archives, men are marginally more frequent digital users (Table 12.5). For digital library use, women take a strong lead, except in Germany and Hungary. The male dominance in archives is strongest in Denmark, but there is a majority of women users of digital archives in Hungary and Sweden. In museums, women use digital services more in all countries except Germany, and particularly so in the Scandinavian countries and Hungary.

### LAM Digital Use in the Six Countries by Immigration Status

Almost consistently, immigrants use LAM digital services more than natives, most in Hungary and Switzerland, with the only exceptions being Sweden and Den-

**Tab. 12.6:** Use of Library, Archives, or Museum Digital Services during the last 12 months according to immigration status (percentages)

| Country | LAM-institution | N | Native | Immigrant | Total |
|---|---|---|---|---|---|
| Denmark | Library | 905 | 39.5 | 42.1 | 39.7 |
| | Archive | 905 | 9.9 | 14.0 | 10.2 |
| | Museum | 905 | 24.6 | 21.1 | 24.4 |
| Sweden | Library | 894 | 34.1 | 33.9 | 34.0 |
| | Archive | 894 | 10.7 | 17.3 | 11.9 [a)] |
| | Museum | 894 | 24.0 | 25.0 | 24.2 |
| Norway | Library | 900 | 30.1 | 37.3 | 30.7 |
| | Archive | 900 | 12.6 | 16.0 | 12.8 |
| | Museum | 900 | 19.9 | 28.0 | 20.5 |
| Germany | Library | 815 | 18.7 | 25.7 | 19.0 |
| | Archive | 815 | 6.7 | 11.4 | 6.9 |
| | Museum | 815 | 14.9 | 25.7 | 15.4 |
| Switzerland | Library | 858 | 21.8 | 30.6 | 22.3 |
| | Archive | 858 | 9.8 | 18.4 | 10.3 [a)] |
| | Museum | 858 | 23.2 | 38.8 | 24.1 [a)] |
| Hungary | Library | 902 | 20.0 | 35.0 | 26.3 [a)] |
| | Archive | 902 | 6.6 | 30.0 | 7.1 [b)] |
| | Museum | 902 | 16.9 | 23.5 | 20.3 |
| *Total* | *Library* | *5274* | *28.4* | *34.9* | *28.9* [b)] |
| *Total* | *Archive* | *5274* | *9.3* | *16.8* | *9.9* [b)] |
| *Total* | *Museum* | *5274* | *21.1* | *27.3* | *21.6* [b)] |

Pearson's Chi-Square [a)] p ≤ 0.05
[b)] p ≤ 0.01

mark, where natives are on par with immigrants in libraries, and again Denmark, where immigrants only use digital museum services on par with the natives. In this context, immigrants include migrants having moved to another country and their children (first and second generation immigrants).

### LAM Digital Use in the Six Countries by Educational Level

LAM digital services are used significantly more by the highly educated in all six countries. For archives, this tendency is weaker, and in Hungary, respondents without tertiary education visit archives digitally slightly more than respondents with tertiary education.

**Tab. 12.7:** Use of Library, Archives, or Museum Digital Services during the last 12 months according to education (percentages)

| Country | LAM-institution | N | Primary and Secondary | Tertiary | Total |
|---|---|---|---|---|---|
| Denmark | Library | 890 | 34.0 | 49.8 | 39.8 [b] |
| | Archive | 890 | 8.8 | 12.7 | 10.2 |
| | Museum | 890 | 20.6 | 31.6 | 24.6 [b] |
| Sweden | Library | 885 | 28.1 | 42.1 | 34.0 [b] |
| | Archive | 885 | 9.8 | 14.7 | 11.9 [a] |
| | Museum | 885 | 18.9 | 30.6 | 24.2 [b] |
| Norway | Library | 884 | 25.1 | 35.6 | 30.8 [b] |
| | Archive | 884 | 10.9 | 14.6 | 12.8 |
| | Museum | 884 | 15.6 | 25.2 | 20.8 [b] |
| Germany | Library | 796 | 15.9 | 25.1 | 19.1 [b] |
| | Archive | 796 | 5.8 | 9.3 | 6.9 |
| | Museum | 796 | 13.7 | 19.0 | 15.4 [a] |
| Switzerland | Library | 849 | 17.7 | 29.9 | 22.4 [b] |
| | Archive | 849 | 9.9 | 10.8 | 10.3 |
| | Museum | 849 | 20.0 | 30.9 | 24.1 [b] |
| Hungary | Library | 902 | 22.4 | 35.0 | 26.3 [b] |
| | Archive | 900 | 7.2 | 6.9 | 7.1 |
| | Museum | 900 | 18.9 | 24.6 | 20.3 [a] |
| *Total* | *Library* | *5274* | *23.9* | *36.3* | *28.9* [b] |
| *Total* | *Archive* | *5244* | *8.6* | *11.8* | *9.9* [b] |
| *Total* | *Museum* | *5204* | *21.1* | *27.3* | *21.6* [b] |

Pearson's Chi-Square [a] $p \leq 0.05$
[b] $p \leq 0.01$

**Tab. 12.8:** Use of Library, Archives, or Museum Digital Services during the last 12 months according to home internet access (percentages)

| Country | LAM-institution | N | No Internet | Internet at home | Total |
|---|---|---|---|---|---|
| Denmark | Library | 905 | 24.5 | 41.4 | 39.7 [b)] |
|  | Archive | 905 | 11.7 | 10.0 | 10.2 |
|  | Museum | 905 | 16.0 | 25.4 | 24.4 [a)] |
| Sweden | Library | 894 | 21.8 | 35.2 | 34.0 [a)] |
|  | Archive | 894 | 10.3 | 12.0 | 11.9 [a)] |
|  | Museum | 894 | 19.2 | 24.6 | 24.2 |
| Norway | Library | 900 | 18.6. | 31.3 | 30.8 |
|  | Archive | 900 | 11.6 | 13.0 | 12.9 |
|  | Museum | 900 | 9.3 | 21.1 | 20.6 |
| Germany | Library | 815 | 19.0 | NA | 19.0 |
|  | Archive | 815 | 6.9 | NA | 6.9 |
|  | Museum | 815 | 15.3 | NA | 15.3 |
| Switzerland | Library | 849 | 13.0 | 22.9 | 22.3 [a)] |
|  | Archive | 849 | 5.6 | 10.6 | 10.3 |
|  | Museum | 849 | 11.1 | 25.0 | 24.1 [a)] |
| Hungary | Library | 902 | 27.7 | 26.1 | 26.3 |
|  | Archive | 902 | 8.0 | 7.0 | 7.1 |
|  | Museum | 902 | 17.0 | 20.8 | 20.3 |
| *Total* | *Library* | *5274* | *NA* | *NA* | *NA* |
| *Total* | *Archive* | *5244* | *NA* | *NA* | *NA* |
| *Total* | *Museum* | *5204* | *NA* | *NA* | *NA* |

Pearson's Chi-Square [a)] $p \leq 0.05$
[b)] $p \leq 0.01$

**LAM Digital Use in the Six Countries by Internet Access**
In the sample, in all countries, except Hungary, patrons with home Internet access use digital library services and digital museum services considerably more than people without home Internet access (Table 12.8). The use of digital archive services shows little variation with home access or not in Scandinavia and Hungary, while twice as many Swiss respondents with home Internet access use digital archive services compared to people without home Internet access.

**LAM Digital Use in the Six Countries by Urban/Rural and Income**
LAM digital use does not vary significantly with respondents' income. We also find few differences in digital use between rural and urban areas, except for Norway,

where the use of digital archival services is significantly higher in the peripheral areas, and in Hungary and Switzerland we see the same for public library digital services.

To summarize, our quantitative analysis of survey data has shown there are significant differences in the use of digital LAM-resources based on gender, age, and immigration status. The analysis also showed that digital services are used significantly more by the highly educated in all six countries, although there were less or no significant variations in usage patterns regarding rural and urban areas, or the respondents' income, and their access at home or not to the Internet.

In the following section, we analyse free-text data, where the respondents described their use of LAM-institutions' digital resources more closely.

## The Use of Digital LAM-resources: Qualitative Results

How did survey respondents use the digital resources of the LAM-institutions? And which resources did they use? The free-text responses of our respondents are presented in Table 12.9. However, it has to be emphasized that relatively few of the respondents filled in free text information. The highest response rate was for the use of library resources, something which probably has to do with the fact that many of the library's basic services are digital. The Danish respondents reached the highest score with a response rate of 36%, and the German respondents the lowest with 15%. A great majority of the free-text respondents had used the local digital library system to search the catalog for books, make reservations, renew loans, and more. In some cases, they had downloaded e-books or audiobooks through the library, and there were also some digital suggestions about purchases of new books. There was no difference between the six countries in this respect.

The answers show that the use of LAM-institutions' digital resources is often connected to the search on the website or social media for basic information such as contact information, opening hours, and upcoming activities. It confirms the assumption that Facebook users visiting LAM-profiles primarily do it to gain information rather than to take an active part in different kinds of digital LAM-related activities. In particular, this was the case for the museums, where this category formed the far largest group, and very few respondents had tried to gain digital access to content, for example, by looking at virtual exhibitions or material in virtual collections. Sometimes the communication was about booking tickets to guided tours. The response rates for museums were, generally speaking, slightly lower than for the libraries with 22% as the highest (Sweden and Denmark) and 15% as the lowest (Germany) score.

**Tab. 12.9:** Use of digital LAM services. Analysis of free-text answers (percentages by country)

| Institution/Activity/ Country | | Swe | Nor | Den | Ger | Swi | Hun |
|---|---|---|---|---|---|---|---|
| Total number of survey respondents | | 1005 | 1021 | 1004 | 1017 | 1002 | 1001 |
| Used digital public library resources, % of total number [a] | | 30 | 27 | 36 | 15 | 19 | 24 |
| Used digital museum resources, % of total number | | 22 | 18 | 22 | 12 | 21 | 18 |
| Used digital archival resources, % of total number | | 10 | 11 | 9 | 6 | 9 | 6 |
| Public libraries<br><br>Categories of use in % of total number of responses | 1. Checked the library's website for contact info, opening hours, info about activities etc. | 6,2 | 7,4 | 5,7 | 2,8 | 3,6 | 3,6 |
| | 2. Checked social media of the library (FB, Instagram, blogs, Twitter, Pinterest etc.). | 1,1 | 2,1 | 0,9 | 0,5 | 0,6 | 3,6 |
| | 3. Used the library system in order to digitally search for books, make reservations, renew loans etc. | 14,9 | 14,4 | 19,6 | 6,7 | 8,4 | 7,4 |
| | 4. Downloaded e-books or other digital media, including streamed audio books, movies etc., which the library gives access to. | 5,0 | 2,6 | 5,0 | 2,9 | 3,1 | 3,4 |
| | 5. Digitally given active response to the library, e.g. suggestions about purchases of new books, communication with the library staff, paid fines for delayed books, booked meeting rooms at the library. | 0,9 | 0,6 | 0,1 | 0,5 | 0,2 | 0,9 |
| | 6. Activities probably related to the use of computers during IRL-visits and references to commercial services for e-books ed. [b] Information difficult to understand or not usable. | 4,6 | 2,4 | 3,5 | 2,4 | 3,3 | 4,4 |

**Tab. 12.9:** (continued)

| Institution/Activity/ Country | | Swe | Nor | Den | Ger | Swi | Hun |
|---|---|---|---|---|---|---|---|
| Museums<br><br>Categories of use in % of total number of responses | 1. Checked a museum's website for contact info, opening hours, info about exhibitions and other activities, entrance fees, guided tours, menu of the restaurant etc. | 9,9 | 9,2 | 11,4 | 6,6 | 12,6 | 8,9 |
| | 2. Checked social media of a museum (FB, Instagram, blogs, Twitter, Pinterest etc.) | 1,8 | 1,8 | 0,7 | 6,9 | 1,4 | 3,8 |
| | 3. Looked at virtual exhibitions or material in virtual collections of a museum. | 1,1 | 1,2 | 0,7 | 2,9 | 1,4 | 3,1 |
| | 4. Actively communicated with a museum, e.g. through digital booking of guided tours or buying of tickets digitally. Digital communication with the staff. | 0,7 | 0,2 | 0,3 | 0 | 0,5 | 0,3 |
| | 5. Participated in crowdsourcing-like activities (published documents or given information about documents in the collections of a museum). | 0,2 | 0,1 | 0 | 0 | 0,1 | 0,3 |
| | 6. Activities probably related to the use of computers during IRL-visits. [c] Information difficult to understand or not usable. | 3,6 | 3,2 | 4,1 | 2,4 | 2,6 | 3,0 |
| Archives<br><br>Categories of use in % of total number of responses | 1. Checked an archival institution's website for contact info, opening hours, info about activities etc. | 2,6 | 2,4 | 1,8 | 0,9 | 1,9 | 1,7 |
| | 2. Checked social media of an archival institution (FB, Instagram, blogs, Twitter, Pinterest etc.) | 1,0 | 0,9 | 0,5 | 0,4 | 0,5 | 0,9 |

**Tab. 12.9:** (continued)

| Institution/Activity/ Country | Swe | Nor | Den | Ger | Swi | Hun |
|---|---|---|---|---|---|---|
| 3. Used digital documents from an archival institution, researched genealogy with help from digital resources. | 2,4 | 4,4 | 2,8 | 1,3 | 2,7 | 2,0 |
| 4. Participated in crowdsourcing-like activities (published documents or information about documents in the stacks of an archival institution). | 0,3 | 0,1 | 0 | 0 | 0 | 0 |
| 5. Actively sent requests digitally to the staff of an archival institution. | 0,1 | 0,1 | 0 | 0 | 0 | 0,5 |
| 6. Activities probably related to the use of computers during IRL-visits, answers referring to "archive" in a broader sense and references to commercial archival services. [d] Information difficult to understand or not usable. | 3,5 | 2,7 | 2,8 | 2,4 | 3,0 | 0,9 |

[a] Free-text respondents saying he/she didn't use any digital services at all are counted as no answers.
[b] E.g., answers as: Internet, Google, Netflix, Amazon, cd, laptop, Pc, Ipad, MeineStadt.de, Thalia, Windows.docs, e-mail, Ex Libris, Aldiko, Audible, iBooks, iPhone, Buch pluss, Gemeindeblatt, Zalando, Borger.dk, Adlibris bookshop, computer, mobile phone, hotels.com, Kivra, Ligimus, Media, spicy memes, Swish, TV, habbo, snapchat, genealogy.
[c] For example: Internet, Google, Library, iPad, Kivra, Hotmail, Media, surfplatta, Nüremberg, Online, Suchmaschine, Windows Writer, Email, City Guide, MEG, Online-Bibliothek, Tablet, Wikipedia, Readbooks, Telenor, NBs nettsidor.
[d] For example: Internet, Google, Library, iPad, Amazon, Meinestadt.de, My Amnesty, e-book, VHS, Zeitungsartikel, Archive.de, Adressänderung, BCU, Deepweb, online Schalter, Passausstellung, Postfinance, You Tube, Borgerservice, Pdf, Biblioteket, Arkiv Digital.

However, the fewest responses were for the use of archival resources. Considering the results reported in Table 12.4 on the respondents' digital use of the three ALM institutions, the lower number of free-text responses, for the use of archives is to be expected. The Norwegians scored the highest with 11%, and the German and Hungarian respondents the lowest with 6%. Still, the results in Table 12.2, showing that digital visits to archives are twice as popular (24%) as phys-

ical visits (12%) among the respondents, it is somewhat surprising that according to the free-text responses few had used digital archival documents. This applied to 4.4% of the Norwegian respondents, but only for 1.3% of the Germans. Some respondents had ordered legal documents of different kinds. Though, the respondents interested in genealogy formed an important group, using digital resources to find information about their ancestors. But it has to be emphasized that in many cases, those resources were not directly connected to the archival institutions but services such as the international *Ancestry* and *My Heritage* or the Swedish *Arkiv Digital*, in other words, Internet-based companies that digitize and give access to archival material through subscriptions.

When analyzing the free text answers, we realized that many answers were not about the use of digital resources of the LAM-institutions, but apparently about the respondents' use of any digital resource during the visit to the library, museum or archive. The general use of digital resources was most evident in libraries, which is not surprising because in all countries covered by this study computers with Internet access are available in public libraries for the visitors' personal use. In many LAM institutions, there is also a free wi-fi service so that the visitors can get access to the Internet using their own devices. But it confirms that the users do not reflect much about whether the digital resources they use are connected to a LAM institution or not. In many cases, their use was just about googling, checking personal email, or social media. Sometimes it was related to the search for city guides or maps, and sometimes it had to do with issues connected to personal finances, bank transactions, or the user's mobile phone service.

In some cases, it was the use of national platforms for citizens' information or digital briefcases for documents from authorities or companies. Some respondents had used databases and other types of digital material that the institution subscribed to, such as digital newspapers, databases, or software. And sometimes it was about watching streamed TV shows or about Internet shopping. Interestingly, there were quite a few references to commercial services for e-books, audiobooks and online bookshops such as Amazon or Adlibris.

The survey tells us that the users do not think about whether the digital resources they use are connected to a LAM institution or not. Often, the use was googling, email, or social media. The participation in crowdsourcing activities was extremely rare among the respondents concerning all three LAM institutions.

Thus, no obvious signs of an increasing digital participatory culture connected to the LAM institutions were found. However, the results indicate to some degree that the LAM institutions, and especially the public libraries, provide services where people use digital resources of many different kinds to get access to

information related to their rights and obligations as citizens, and where users take part in digitally mediated cultural expressions.

## Summary and Discussion

As we have seen, museum usage seems to be the least affected by digital services; they are an add-on to the collection of physical objects. Libraries are in the middle position, but still heavily dominated by physical usage. In archives, on the contrary, digital visits are more popular than physical visits. Digital archive services seem to remove the barrier of physical travel to archival collections, and thereby can make physical access to collections seem less important to decision makers. We find that the European north-south cultural divide exists for the use of digital library services. Still, it is the geographically in-between German respondents that are the most infrequent users of all three types of LAM digital services. Germany consistently trails behind the Nordic countries, Switzerland, and Hungary.

Women dominate the use of LAM-digital services, except for archives that men use slightly more. Library digital services are used most frequently in the youngest age group, the 18–29-year olds, while the 50–59 age group is the most infrequent users; Germany especially has high numbers for the young. For archives and museums, we find the opposite pattern; in all the six countries, digital use increases with age. In the total sample, immigrants use all LAM digital services more than natives, and the most in Hungary and Switzerland. LAM digital services are used more by the highly educated in all six countries. Except for Hungary, patrons in all countries with home Internet access use digital library services and digital museum services substantially more than people without home Internet access, while the use of digital archive services shows little difference between countries.

From the qualitative data, we see that the use of LAM institutions' digital resources is still often connected to searching on the website or on social media for basic information such as contact information, opening hours, and upcoming activities. In particular this was the case with the museums, where this category formed the far largest group, and very few informants had tried to gain digital access to content, for example, by looking at virtual exhibitions or material in virtual collections. Regarding digital access to content in archives, an important group was the respondents interested in genealogy, using digital resources to find information about their ancestors, although in many cases those resources were not directly connected to the archival institutions but subscription-based commercial digital services.

The survey revealed that participation in crowdsourcing activities was extremely rare among the respondents for all three LAM institutions. The conclusion from that is that there are still no strong signs of an increasing digital participatory culture connected to the LAM institutions involving the digital resources provided specifically by those institutions. But at the same time, the results seem to indicate that the ALM institutions, and especially the public libraries, work as community platforms for digital communication and participation, where people use digital resources of many different kinds to access information related to their rights and obligations as citizens, to digitally mediated learning resources, cultural expressions, and entertainment, such as literature, film, music, computer games, or to communicate digitally, share information with other users, and actively participate in activities on all conceivable topics.

When comparing the results of the survey with the professional and scholarly debate concerning digitalization that has characterized the LAM institutions since the early days of the Internet, we see a certain connection between the different assumptions and predictions, from representatives of the respective institutions, and the findings from the survey. Although heavily dominated by physical usage, a large percentage of patrons uses the library either digitally or both digitally and physically. But digitalization does not (at least not for now) pose an immediate threat to physical libraries as still more than half of the library users only visit the library through physical visits.

For museums, digital services can be seen as an add-on to the traditional physical activities based on the collection of physical objects but not as something that replaces the physical visit. Archives are the only LAM institution visited digitally more than physically. The digital transformation has opened up new opportunities for access and use of archival data and thereby has unleashed the potential reach of the archives.

The findings presented in this chapter contributes to the limited literature on the topic of the use of digital LAM-services – especially in that in addition to public libraries, the digital use of archives and museums is examined, and in a comparative perspective regarding both document institutions and national systems.

Concerning the LAM institutions as public-sphere infrastructure in a broader sense, including, for example, the support of participation, social cohesion, and civil society, the role of the physical LAM institutions does not seem to have been significantly reduced in the digital age.

Apart from archival digital services, digital LAM-services still seem to be in early adolescence. The contribution of digital services to digital participation in cultural and civic activities connected to libraries and museums is minor, more than a decade after the social media revolution. It is questionable whether digi-

tal services will contribute considerably to the public sphere role of libraries and museums.

The physical and spatial dimensions of library and museum buildings and collections that are open to individuals and communities, creating public engagement and activities for both minds and bodies, are seemingly unbreakable institutional traits extending beyond the public sphere (see also Freeman and Blomley 2018). Taking the liberty of recontextualizing Stein Rokkan, The Norwegian Political Scientist, digital services count, but physical services decide.

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