

# CULTURAL HERITAGE FOR ALL

– on digitisation in the archive, library and museum sector

Editor: Ranveig Låg Gausdal



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English Edition



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– on digitisation, digital preservation and digital dissemination in the archive, library and museum sector

*A report by the Working Group on Digitisation, the Norwegian Digital Library*

*Editor: Ranveig Låg Gausdal*

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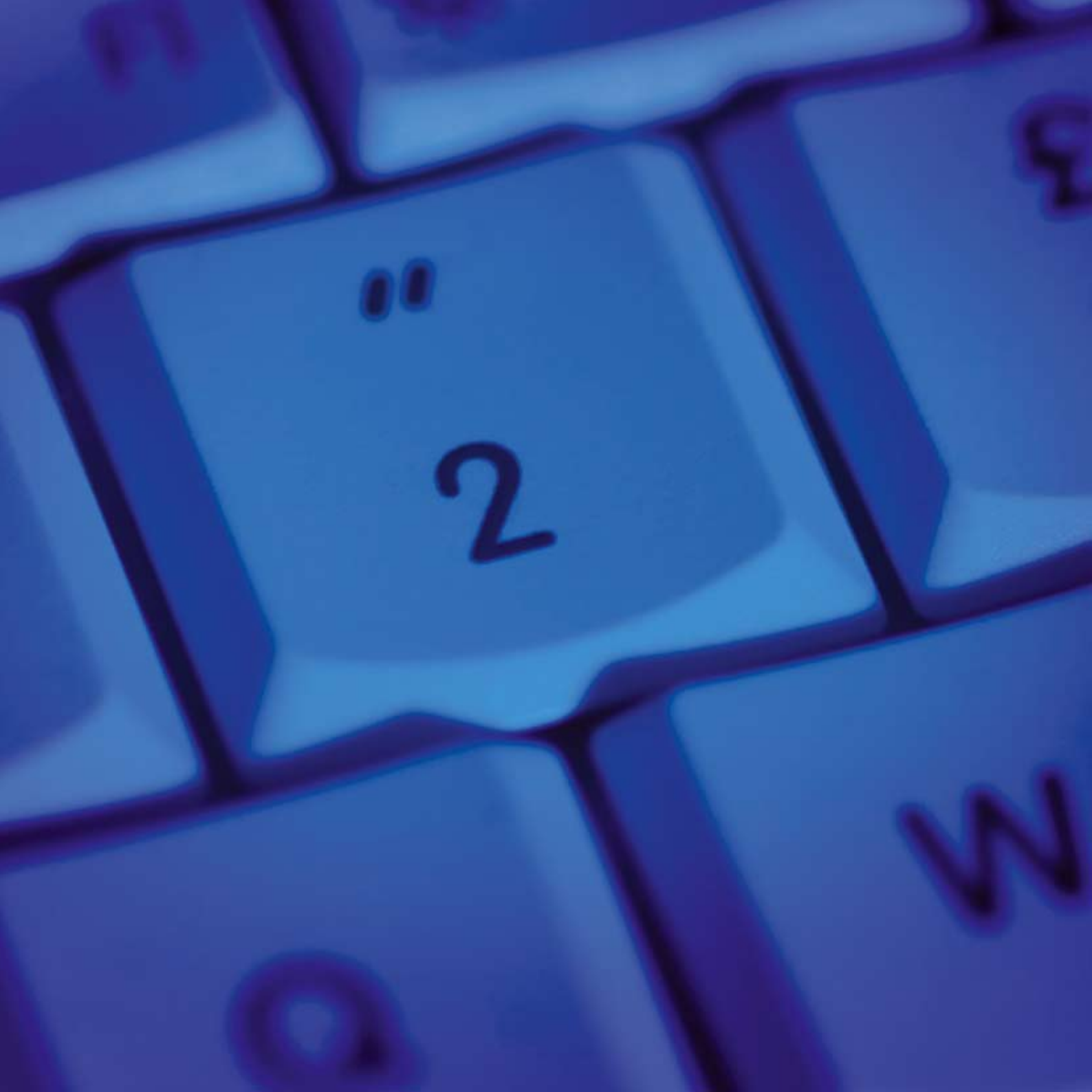
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# PREFACE

“A cultural heritage for all – on digitisation, digital preservation and digital dissemination in the archive, library and museum sector.”

We hope this report will be of interest to other countries facing the challenges associated with digitisation, the long-term preservation and the dissemination of digitised materials.

The English version of the report does not include the attachments referred to therein, although it sets out the report in full, with discussion of the problems associated with digitisation, as well as proposals for a national strategy.

The Report has been composed by a broadly based Working Group and does not necessarily represent the views of

the Norwegian public authorities. The Norwegian Archive, Library and Museum Authority (ABM-utvikling) is in the process of sending the report out for extensive consultation to Norwegian archives, libraries and museums and other authorities and interest groups.

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# INTRODUCTION

The Working Group on Digitisation was established in 2004 with the mandate to analyse the needs for digitisation of the resources in archives, libraries and museums (hereafter also referred to as ALM) and to propose what action should be taken in this connection. The group includes specialist representation from the ALM domain and from the university and university college sector, at the local, regional and national levels.

The programme Norwegian Digital Library, which has served as a framework for the Norwegian Archive, Library and Museum Authority's work with the challenges presented by IC technology and with digital materials, was charged

with setting up the Working Group. The Norwegian Digital Library was originally conceived as a programme for the ALM domain as a whole, and the Working Group has consequently worked with a cross-sectoral perspective. In practice, however, much of the work carried out in the Norwegian Digital Library has focused on the library sector. From the autumn of 2006, the Norwegian Digital Library will probably continue purely as a library programme, while the overall area of commitment for archives, libraries and museums will be organised using different parameters.

## 1.1 Background

There is increasing attention given to digitisation interna-

tionally and consensus that the challenges should be met by a methodical and co-ordinated approach. To date, there is no clearly defined and comprehensive national strategy for digitisation in Norway. The need to work out the ground rules for the development of such a strategy was a major reason behind the establishment of the Working Group.

In White Paper no. 22 (1999-2000) *Sources of knowledge and experience* (hereafter referred to as the ABM report), which introduced serious collaborative work between the archives, libraries and museums in Norway, ICT in general was put forward as an important argument for the co-ordination and co-operation between the three

constituent sectors. The discussion on digitisation included the following statement: “In respect of digitisation (...) there is additionally a need to gain a better overview of the current situation in the different areas. Many different participants are involved and many types of problems will arise in a long-term national perspective, both in relation to the choice of technical method, organisational models and priorities, and the division of tasks. The Ministry will therefore initiate a status report of this field, in order to obtain a better basis for more integrated ways of thinking and for planning future action.” (ABM report, p. 120)

The Ministry of Culture and Church Affairs again referred to this status report in White Paper no. 48 *Cultural Policy towards 2014* (hereafter referred to as the Report on Culture). It stated that: “The Ministry has asked The Norwegian Archive, Library and Museum Authority to take the initiating and co-ordinating responsibility for following up on the initiative announced in the ABM report for a status report providing the basis for

more uniform thinking and planning of future work on the digitisation of cultural heritage materials.” (The Report on Culture, p. 169)

It will be the task of the Working Group for Digitisation to carry out this commission from the Ministry of Culture and Church Affairs.

### 1.2 Working Group

The Working Group consisted of the following members:

- Ranveig Låg Gausdal – The Norwegian Archive, Library and Museum Authority (Head of Working Group)
- Øyvind Eide – The Museum Project, Unit for Digital Documentation, University of Oslo
- Lars Gaustad – The National Library
- Lars Nygaard – The National Archives of Norway
- Siren Steen – Bergen Public Library
- Gunnar Thorvaldsen – The Norwegian Historical Data Centre, University of Tromsø
- Gunnar Urtegaard – Sogn og Fjordane County Archives (as from the meeting of December 7, 2004)
- Karianne A. Aam – The Norwegian Archive, Library and

Museum Authority (secretary to the group until the meeting on February 1, 2006)

- Anett Kolstad – The Norwegian Archive, Library and Museum Authority (secretary to the group as from the meeting on March 9, 2006)

The first meeting of the Working Group was on September 20, 2004. A total of 13 meetings have been held.

All members have contributed to different parts of the report. Ranveig Låg Gausdal has been responsible for the preparation of the final text.

### 1.3 Vision

In line with its vision for the task, the Working Group has emphasised that the report will describe an integrated national strategy which will enable the ALM institutions to function as up-to-date and relevant institutions in a digital world. The institutions should have access to solid digital infrastructure, possess digital catalogues, and the materials of all the ALM institutions should be digitised. The associated procedures should become an integrated and permanent part of daily

activities, and be based on a work allocation that effectively uses the available resources.

The Working Group wants the users to be the focus of activities. The digital resources and services in all ALM institutions should be adapted to the users and their needs. All users should have the right to expect that a varied and representative range of digital facilities are available to them in the particular institutions that are of the greatest relevance to their needs. The Working Group envisages a large-scale nationwide effort to ensure that the greatest possible number of digitised materials is made available to the highest possible number of users, in a context of coherent integration, before the national bicentenary celebrations in 2014.

#### 1.4 Mandate

The Working Group has had the following mandate: “The Working Group for Digitisation shall maintain an ALM perspective and take as its starting point the current situation and requirements of the archives, libraries and museums. The group should focus particularly on access to, and the open and

democratic dissemination of, digitised materials. With this premise in mind, the Group shall:

- Map out existing plans, the larger interest groups working in the field, and relevant collections that have already been digitised. Links should be established with projects being carried out at a European level.
- On the basis of this survey, provide a preliminary analysis of the need for digitisation, with proposals on how best to accommodate the various claims and requirements for priority from the various user groups.
- Provide suggestions on how to establish general principles and criteria for selecting Norwegian material to be digitised. By this is meant materials managed by Norwegian knowledge-based and cultural institutions, e.g:
  - manuscripts
  - published materials
  - archival documents
  - art materials
  - photographic collections/ photographic materials
  - audio-visual materials (sound, film, etc.).

Catalogues covering these types of materials are also included.

- Provide an evaluation of how the digitised materials can best be made accessible and disseminated to the various user groups.
- Provide an evaluation of how the continued work on digitising cultural heritage materials can be co-ordinated and planned in a more integrated manner
- Submit proposals on how best to capitalize on the combined competence represented by various Norwegian centres and institutions, and be able to, among other things,
  - provide suitable guidance
  - prepare guidelines for interest groups wishing to digitise materials but which do not possess the appropriate skills
  - facilitate the accessibility of materials in various contexts and to different user groups.
- Submit proposals on how the systematic process of digitising Norwegian sources of knowledge can be linked to the work of the Norwegian Digital Library.”



## 1.5 Interpretation of the mandate

The Working Group has made two important distinctions in relation to the mandate. One concerns the types of institution, and thus what type of materials, that are to be included in the work. The second involves the interpretation of the terms “digitisation” and “digitised materials”.

The mandate does not make it entirely clear which institutions and materials should be included in the work. It refers to “Norwegian sources of knowledge”, which are defined as “materials managed by Norwegian institutions of knowledge and culture”. However, the term “Norwegian institutions of knowledge and culture” could be interpreted in many ways and could potentially include a wide range of different institutions. The general introductory instructions of the mandate do state, however, that the Working Group “shall maintain an ALM perspective and take as its premise the current situation and needs in archives, libraries and museums”. The Working Group has therefore chosen to interpret the mandate to require

that their remit will cover the institutions and the materials in the ALM domain. Materials managed by the domain but digitised by others outside the domain will nevertheless be included.

Consequently, the Working Group has, for example, not dealt with the sometimes extensive digitisation of older archival materials carried out by different departments of public administration for the purpose of meeting the administration’s own information and documentation needs. Another example is the digitisation of paper editions of newspapers carried out for the newspaper’s own use.

The mandate emphasises that the task involves “*Norwegian* sources of knowledge” and “*Norwegian* institutions of knowledge and culture”. The Working Group has chosen to interpret this to mean those institutions (archives, libraries and museums) that are situated in Norway and the materials they manage, including materials linked to ethnic and national minority groups.

In some cases, Norwegian materials, or materials relevant to Norway are digitised abroad.

The Working Group has not considered these. Because of the periods of union with Sweden and Denmark, there will be Norwegian digitised materials in Sweden and Denmark. Another example is the digitisation of Norwegian materials by the Mormon Church in the United States ([www.familysearch.org](http://www.familysearch.org)). Other digitised materials to be found beyond our national borders include musical scores, manuscripts, etc. associated with Norwegian artists who are well-known abroad.

It is also important to emphasise that by “digitised materials” we mean, in line with common practice, digitised materials created from materials originally produced in an analogue format. This is in contrast to digitally created materials, or materials that exist only in this format. An exception to this is audiovisual material produced in digital format for medium specific information carriers such as audio CDs or digital format video. Our conception of “digitisation” is thus the process by which digitised materials are created as media independent files. The Working Group envis-

ages different forms of digitisation such as transcribing, scanning, ripping, etc. For example, “digitisation” does not include the creation of electronic archives in public administration, digital publishing of books or periodicals that are not published in another format, or the downloading of homepages.

It thus follows that there are large and ever increasing volumes of digital materials associated with the ALM domain

that are not considered in the Working Group’s report. In the follow-up to the report, it is important to consider the issues of digitised materials and the needs for digitisation in the light of this.

The mandate emphasises that the catalogues of materials managed by Norwegian knowledge-based and cultural institutions should be included. In respect of these catalogues, the Group has not applied the same

distinction between digitised and digitally-created catalogues. The introduction of such a division would be inappropriate and sometimes impossible inasmuch as digitally-created catalogues and the digitisation of catalogues originally created in an analogue format often operate in the same system, and frequently in the same database. Therefore, both types of catalogues have been included in the work.



## THE WORKING GROUP'S PROPOSED INITIATIVES

The Working Group proposes in its report the launch of a concerted, co-ordinated national initiative to create access to sources of knowledge and culture that are managed by archives, libraries and museums. In order to work towards and facilitate the successful completion of such an initiative, we have formulated a series of proposals for action. This chapter provides an overview of the initiatives and will serve in part as a summary of the work. The same initiatives will also be discussed in later chapters of the report, with an explanation of the reasoning behind them and descriptions of the initiatives in a broader context.

A large number of the initiatives give The Norwegian

Archive, Library and Museum Authority an administrative or co-ordinating role, or the role of initiator of these measures. The Working Group considers that the chances for the successful completion of such an effort are greatly enhanced by defining areas of responsibility. The Norwegian Archive, Library and Museum Authority already plays a leading role in developing the three ALM sectors, and one of its tasks is to view the resources and opportunities available in archives, libraries and museums in a wider context. It is therefore natural to place responsibility for co-ordination and development of the initiative with The Norwegian Archive, Library and Museum Authority. In many cases there are, however, other

organisations which will be much more important for the actual carrying out of the initiatives. These organisations will vary according to the issue.

Chapter 8 recommends the establishment of a digitisation council to act as a governing body for the initiative. It shall be the task of the council to ensure the participation of the entire ALM domain, and to create alliances within the domain. The composition of the council should include representatives from each of the archive, library and museum sub-sectors, at local, regional and national levels, cf. Section 8.1. The National Archival Services of Norway and the National Library should be represented in the council, as should representatives from the

university and university college sector, and the end users. The Norwegian Archive, Library and Museum Authority should consult the council on decisions to be made regarding all important strategic issues.

The Working Group proposes the following initiatives:

### **2.1 The need for digitisation**

- A concerted and co-ordinated national effort should be undertaken to create access to the sources of knowledge and culture managed by the archives, libraries and museums. This report should form the basis for the effort. The Norwegian Archive, Library and Museum Authority should take on the task of co-ordinating the effort and should send out the report for consultation to the ALM domain before work is begun.
- A critical part of the national effort should involve the creation of a programme for retrieval to permit a high level of production of digital materials by the whole domain. The aim is to create access in a digital format to a wide and representative proportion of the original analogue collections.

### **2.2 General principles and criteria for selection**

- The Norwegian Archive, Library and Museum Authority should launch a consultation with the ALM domain and other interested parties on the Working Group's proposed general principles and criteria for selection. Subsequently, the criteria should be published and distributed across the ALM domain, accompanied by a set of guidelines to serve as a tool to be used in planning processes.
- When establishing a national programme for digitisation of materials in the ALM domain, the general principles and criteria for selection should form the basis for the primary aims of the programme.

### **2.3 Know-how, infrastructure and long-term preservation**

- As part of its information and development activities, The Norwegian Archive, Library and Museum Authority should emphasise that it is digitisation, preservation of digitised materials, and the provision of digitised services, which constitute the primary challenges now facing the ALM domain.

- The Norwegian Archive, Library and Museum Authority should, in co-operation with the major relevant organisations, initiate training programmes in the field of digitisation and the handling of digitised materials for staff in the ALM domain. The training must be based on competence derived from experience, sound technical frameworks, and guidelines which are discussed in other parts of this report. The training should be both practical and visionary.
- Together with the major relevant co-operating institutions, the Norwegian Archive, Library and Museum Authority should approach educational institutions with a view to making issues surrounding digitised materials and digital dissemination a central part of the curricula and programmes related to archives, libraries and museums,.
- In collaboration with the principal institutions, the Norwegian Archive, Library and Museum Authority should take the initiative of developing a system for the effective integrated use of specialised

expertise and equipment. Clearly, the ALM domain has mutual interests with other segments of society, especially the university and university college sector and the sectors concerned with conservation of our natural and cultural heritage (natur- og kulturminnevernet).

- In connection with the development of a national infrastructure for digitisation, the databases Asta and Primus should be developed to allow them to function as tools for national online production databases for catalogue information. Consideration should be given to the extent to which there is a corresponding need associated with the various library systems.
- Integrated digital repositories for long-term preservation of digitised materials at a national level should be defined. The National Library, the National Archival Services of Norway and the Norwegian Archive, Library and Museum Authority should, in co-operation with others, report further on how best to distribute the materials among such repositories, and

who should be responsible for them. The solutions sought should be seen in the context of the materials held by and the needs of the university and university college sector.

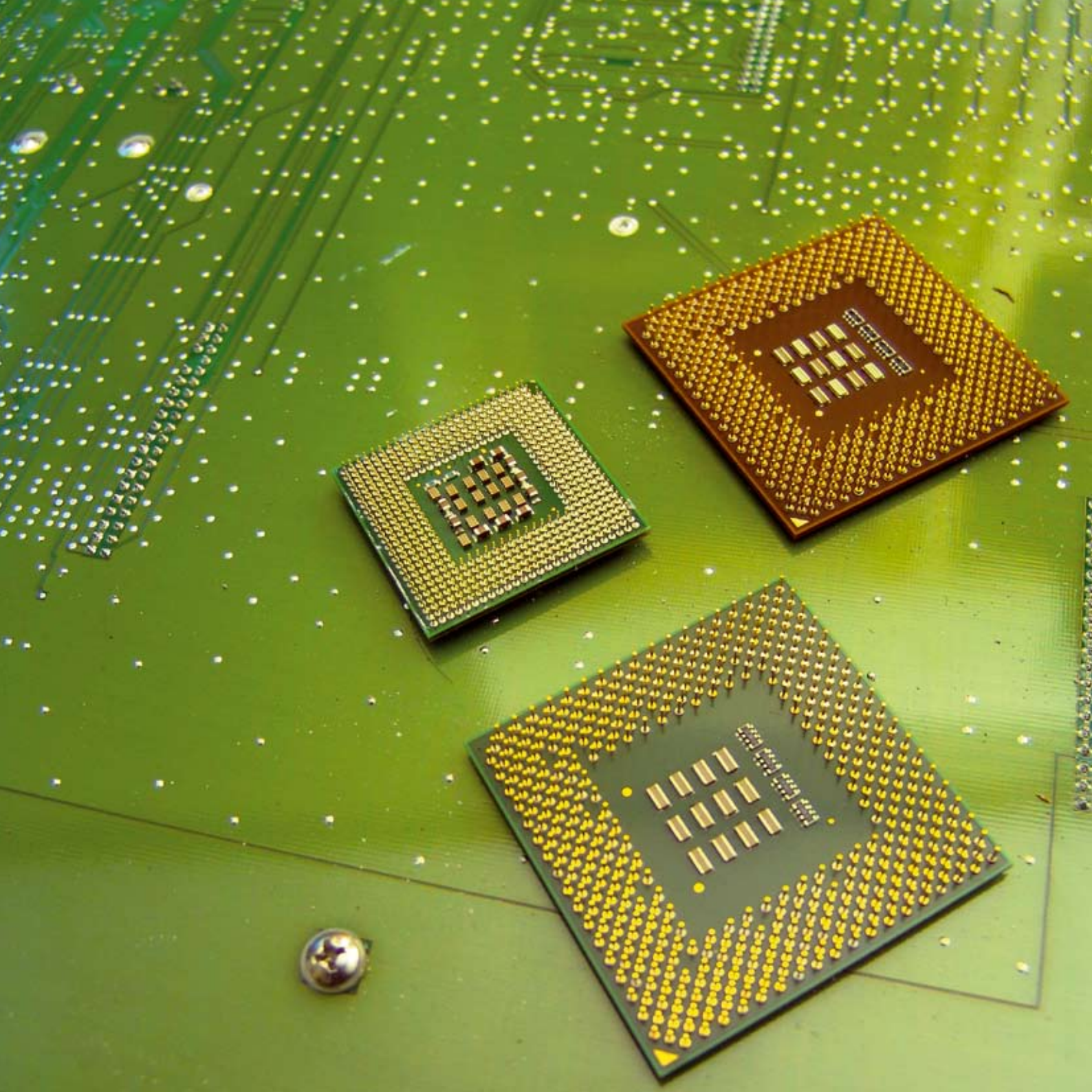
- In relation to the continued development of a technical framework, the Norwegian Archive, Library and Museum Authority should pay particular heed to the interrelationship of the framework that covers the archives, libraries and museums. The framework should also be seen in the context of the needs of the educational sector to facilitate the use of archive, library and museum materials for learning purposes (from primary school to university and university college level). The need to integrate the extensive digital materials held in the university and university college sector should also be considered.
- The standards, formats, etc. supporting a technical framework will alter with time. Consequently, the Norwegian Archive, Library and Museum Authority should establish a system of continued maintenance. Current frameworks

should at all times be communicated to those interested and be easily accessible through the Internet, together with instructions and guidelines.

- In co-operation with relevant organisations, the Norwegian Archive, Library and Museum Authority should prepare an overall plan for the development of instructions and guidelines where required. The task of devising individual instruction and guidance should be assigned to the relevant bodies.
- There will be a continuous need to alter and update these materials. The Norwegian Archive, Library and Museum Authority should therefore establish a system of continued maintenance. Such maintenance should be undertaken by the relevant co-operating organisations. Current instructions and guidelines should at all times be communicated to the three sectors and be easily accessible on the Internet, together with the technical framework, etc.

#### **2.4 Access and further processing of the materials**

- When allocating funds from a



national programme for digitisation in the ALM domain, emphasis should be placed on the degree to which the digitised material can be made accessible to user groups.

- When establishing integrated national solutions for production and digital repositories, websites should also be developed to provide the users with direct access to the materials.
- In co-operation with the major relevant organisations, the Norwegian Archive, Library and Museum Authority should continue to develop a search portal for digitised materials in the ALM domain.
- When allocating funds from a national digitisation programme, it should be stressed that the materials show that they can be adapted and systematised for different user groups and according to different requirements. Consideration should also be given as to whether such a provision is part of the project.
- The Norwegian Archive, Library and Museum Authority should further develop the Working Group's proposed quality standards for, and good examples of, ALM services on

the Internet, and subsequently launch a consultation with the ALM domain. After this round of consultation, the standards and examples should be published and communicated to the ALM domain, to serve as a tool for use in planning processes.

- Localization of digitised materials from the ALM domain on a map can often create a user-friendly introduction to materials. Therefore, in association with the development of a national infrastructure for digitisation, there should be an emphasis on the integration of map services.
- The Norwegian Archive, Library and Museum Authority should contact the Ministry of Culture and Church Affairs with a view to reaching an agreement with the Norwegian Mapping Authority to give the ALM sectors access to map and photographic data. The issue should be solved and financed to cover the domain as a whole.
- When allocating funds from a national digitisation programme, consideration should be given to whether co-operation has been established with

representatives from other segments in society or with special user groups regarding the development of available services.

- The Norwegian Archive, Library and Museum Authority should continue to develop its co-operation with SANU (the co-ordinating group for websites in the education sector). A detailed statement in relation to specific development projects is encouraged.
- It should be the task of the Norwegian Archive, Library and Museum Authority to promote access to the services of the ALM domain through the websites of other domains and sectors.
- In co-operation with selected organisations in the domain, the Norwegian Archive, Library and Museum Authority should initiate a project to test and evaluate various forms of systematic co-operation with user groups linked to online services. The project should also test different methods of evaluating the effect of the services on various user groups and user situations.
- When allocating funds from

a national programme for digitisation, emphasis should be placed on whether provision is made for users with a non-Norwegian cultural or language background, and whether there is provision for international co-operation where appropriate.

- When allocating funds from a national digitisation programme, importance should be given to whether universal access has been considered.
- The Norwegian Archive, Library and Museum Authority should continue working to increase awareness and competence related to universal design, and consider the need to improve guidelines related to universal access to the digital services provided by ALM institutions.
- It is recommended that in co-operation with selected organisations, the Norwegian Archive, Library and Museum Authority initiate a project to investigate the appropriate degree and method of indexing digitised materials, with a view to their visibility in common search engines.
- The Director General of the National Archival Services of

Norway should contact Statistics Norway for clarification of the Statistics Act in practice. It should be possible to develop a system of graduated access to materials, subject to their level of sensitivity, the user group involved, and the age of the materials.

### 2.5 Division of tasks and co-ordination

- A steering committee for the initiative should be appointed at a high, even political, level, with representatives from the Ministry of Culture and Church Affairs, the Ministry of Education and Research, and the Ministry of Government Administration and Reform.
- A Digitisation Council should be appointed, with representatives from the archives, libraries and museums at local, regional and national levels. The National Archival Services of Norway and the National Library should be represented on the council, as well as the university and the university college sector and the users. The council should develop and continuously maintain a comprehensive

national strategy for digitisation, and to strive to find solutions for how it can best be realized. The Norwegian Archive, Library and Museum Authority should act as the secretariat for the Council.

- As part of a national effort for digitisation in the archive, library and museum sectors, regional centres of expertise should be set up to encourage digital cohesion. These should in part be government-funded.
- Institutions at the national level should receive resources and funding in order for work to digitise their own materials to progress at a reasonable pace. This will be the task of the proprietors of the institutions.
- The Norwegian Archive, Library and Museum Authority must increase the level of priority given to digitisation and digital materials and should make its investments and strategy known to interested parties. The priorities and investments must apply to the archive, library and museum sectors as a whole.

# A SURVEY OF THE CURRENT SITUATION

The Working Group has carried out an extensive survey of existing digitised materials and ongoing work related to digitisation in selected archives, libraries and museums and selected institutions in the university and university college sector. The survey forms an important basis for the conclusions and proposals for action contained in this report. The mandate requested the Working Group to “map out existing plans, the larger special interest organisation and the collections that already exist in a digital format within the field”. It is on the basis of this request that the survey was carried out. At the same time, and in order for the Working Group to provide informed recommendations

with respect to other points of the mandate, we took the opportunity to include supplementary questions in the survey. The Working Group has investigated conditions relating to ease of access, dissemination, choice of priority and selection, organisation, how the work on digitisation is financed, security and long-term preservation of materials. The institutions have also provided answers to what they feel is needed for them to make further advances in this area. The survey was carried out during the summer and autumn of 2005. It should be borne in mind that the situation is changing rapidly.

A separate report on the work carried out in the survey is attached to this report. For

the purposes of this report, the various conclusions are further discussed in the chapters most relevant to them. A summary of the most important findings is set out below.

## 3.1 Status

Of the institutions that answered the survey questionnaire, three quarters already possess or are in the process of developing digital catalogues of their own collections. Of these, those in the library and archive sectors are the most advanced, with almost all the library and 80% of the archival institutions having digital catalogues. The museums appear to lag behind, with only around two thirds possessing digital catalogues. It is most evident in the museum

sector that smaller institutions are less likely to have digital catalogues than their larger counterparts.

The library sector is once again one step ahead regarding the number of catalogues that exist in digital format. Many of the libraries reported that 76-100% of their catalogues are available in digital format, while a lower proportion of the catalogues in the archives and museums are digitised.

Where the digitisation of the actual content of the collection is concerned, only just over a third of the institutions that answered the questionnaire have replied that work is in progress. It would thus appear that work on digitising the analogue collections is less advanced than the work on the digital catalogues. In this area, the archive sector is in the lead, since more than half have started to digitise their collections, while the museums, and even more so the libraries, lag behind. In this area too, the tendency is for the largest, and consequently the most resourceful, institutions in all three sectors, to be in the lead.

Around three quarters of the

institutions report that they have digitised only a small part of their collections (0-25%). It is probable that in many cases the reality is closer to zero than to 25%. This fact reinforces the impression that progress in digitising the collections in an analogue format lags well behind that achieved with the digitisation of the catalogues. Bearing in mind the very considerable amount of analogue material managed by the three ALM sectors, it is reasonable to conclude that only a minute portion of the total material is available in digital format. Therefore, there is a great deal of potential for improving cultural heritage materials through investment in digitising materials in the archive, library and museum domain.

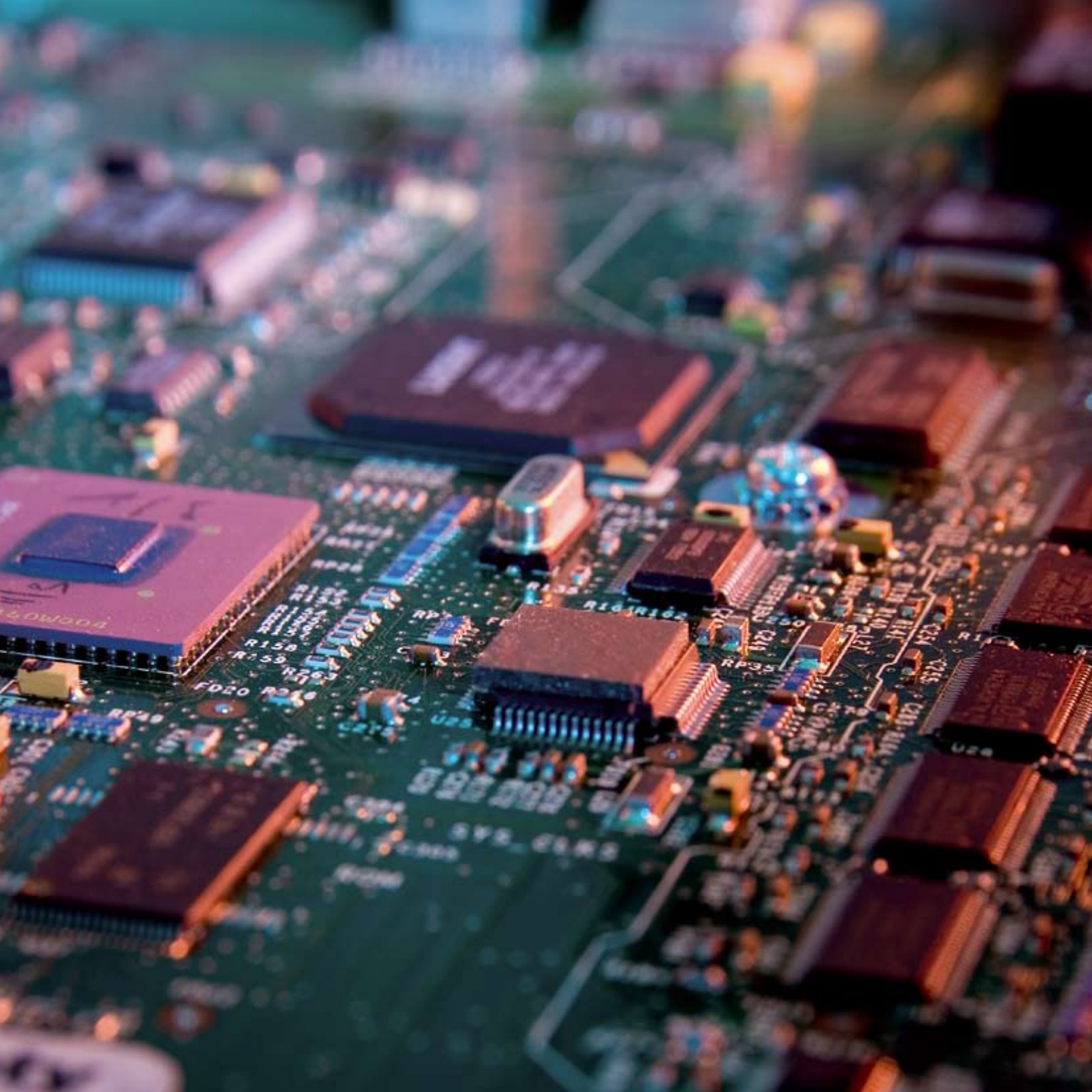
### 3.2 What has already been digitised?

Textual materials are the most common type of original material in the digital collections included in the survey. Far more handwritten texts are digitised than printed texts. The largest collections of handwritten texts consist of church registers, folk tales and language

archives. Of the printed texts, periodicals and literary texts are most common. The digitised texts constitute in roughly equal measure full texts (transcribed or OCR processed) and facsimile (scanned) texts. The reduction in price for the production of facsimiles has led to a sharp increase in this type of digitisation, even though transcriptions often provide more opportunities for different uses of the materials. Scanned photographs also make up a large part of the digitised materials.

Not surprisingly, the digitisation of handwritten texts is largely undertaken in the archival institutions, whereas the libraries work on printed texts, a fact which reflects the traditional principal activities of the two institutions. Most of the work involving the digitisation of photographs is conducted in the museums. A very large proportion of the digitised photographs comes from a few, large projects, illustrating the value of aiming for a certain scale within the initiative.

Some of the material constitutes a nationwide series, with some of it covering certain geographical areas. There are great



differences from one area to the next in terms of the type of materials in digital format.

There is considerably more digitised material available covering more recent history than from the more distant past. This should, however, be considered in terms of the amount of available analogue material covering the different periods. When considering the large quantity of extant analogue materials from the 1800s, and in particular the 1900s, the albeit extensive digital collections from these periods represent a much lower proportion of coverage than that achieved for the Middle Ages. However, the period with perhaps the poorest coverage of digitised materials is the early Modern Period (from around 1500 to around 1800), at least when compared with the Middle Ages and the 1800s.

### 3.3 Accessibility and dissemination

It is of little importance to users whether certain materials have been converted digitally if they are not accessible to them. Approximately one third of the digital catalogues identified in the survey were

completely inaccessible to the public at large, while just over a third were openly accessible and something under a third were only partly accessible. The catalogues in the libraries are largely accessible; those in archives are accessible to a fairly large degree, although they could be made even more accessible. Only a few digital catalogues in museums are generally accessible, and here there is great potential for improved access.

Almost half of the digitised collections identified in the survey are openly accessible to the public, while almost a quarter are partly accessible. Again, it is evident that the collections in the archive and library fields are to a large extent accessible, whereas digital collections in museums are less accessible to the general public.

As regards the proportion of the number of collections that is accessible to the public, it is particularly the collections of photographs, artefacts, sound, film and video that reveal a lack of public access. The proportion of the collections of texts that is generally accessible is greater. Despite this, the need is just as great for further work to be car-

ried out to create access to digital textual materials, since the overall volume of such material is much greater.

In some cases there are particular obstacles, often of a legal nature, that underlie the lack of general access. In relation to the materials included in the survey, only approximately half the cases were due to such limitations. When, in certain cases, these limitations do apply, it is rarely a question of cost. Not surprisingly, the most common obstacle to the digital publication of the collections in libraries is related to copyright, whereas questions related to the protection of individual privacy play a greater role in the archives. However, the limitations imposed by pricing, copyright and protection of privacy are in reality a much greater problem for digital access than indicated by the survey, because such limitations often prevent the materials from being selected for digitisation in the first place.

It is not always easy to apply the materials in the ALM domain to suit all purposes without prior processing. It is often necessary to modify the

materials to make them suitable for different circumstances and for different user groups. Of the digital catalogues identified in the survey, only a very few are organised with a view to providing easy access. The situation is somewhat better with regard to the digitised collections. There is great potential for a much larger investment in the systematisation and dissemination of digitised materials to make the material not only physically accessible, but also truly accessible and applicable to more people.

The most common reasons stated for digitising materials are the desire for greater accessibility and requests by the users themselves. This is a positive expression of the opportunities presented by the digitisation process for more democratic involvement in the use of the materials represented in the archives, libraries and museums. The materials are of relevance to a range of potential user groups. Broadly, it would appear that, to date, the highest priority groups catered for in the selection of materials for digitisation consist of researchers, students and genealogists.

### 3.4 The institutions' work on digitisation

In order to support long-term policy aims and co-operation, it is important that plans and priorities are stated in writing. The museums are in the lead in this respect, although only about half of them reported that they have prepared written plans and stated priorities with regard to digitisation work. Just less than half the archives and only a third of the libraries have prepared such work. Here again, the trend shows that the larger institutions are in front.

Digitisation is most often carried out by the institution which manages the materials, and where, the work has been carried out by others, there is often a close connection between the institution and those who have completed the work (typically different user groups). There is no tradition of outsourcing such work to institutions or companies with specialized expertise.

The financing of major digitisation projects tends to come from project funding, indicating a lack of long-term financial planning, thus preventing organised investment in the future. Nevertheless, the great-

est number of projects have been financed through the institutions' own budgetary means in some form.

The use of standards, the choice of tools and formats, and the emphasis on security, all create important conditions for the exploitation and accessibility of the digital materials and for their long-term preservation. Among the findings of the survey is the fact that few standards are mentioned in connection with digitised materials, and much of the material does not appear to be covered by standards. However, where standards do exist, there appears to be wide use of these, which indicates a willingness to use them when possible. In relation to catalogue materials, the same point is illustrated by the number of catalogues based on MARC. No corresponding standards for museums and archives are mentioned. However, it is positive that in most cases of catalogued materials, national solutions and systems are used. Also positive is the fact that digital collection files are on the whole stored in open formats and on hard drives.

Almost all the catalogue

materials are subject to copying for security reasons, and the procedures for this largely involve regular back-up. The long-term preservation of large quantities of digital material requires high levels of both competence and resources, and a systematic and structured approach is required for a successful outcome. It is, therefore, somewhat alarming that neither the catalogue materials nor the digital collections in the survey are covered by strategies for their long-term preservation to any significant degree. Even where it is stated that such strategies are in place, almost nobody appears to pay sufficient attention to the challenges posed by genuine long-term preservation. The catalogue materials in libraries are an exception to this.

A large majority of the institutions which submitted answers to the survey questionnaire confirmed their interest in moving ahead with digitisation. From a choice of eight alternative responses, internal conditions such as better equipment, improved competencies and, in particular, improved financial conditions and increased

personnel resources, were most often chosen as important prerequisites to advancing the work,. External conditions, such as centres of expertise to provide advice or services, help from networks, or the need for guidelines, were given less weight.

### **3.5 If the resources were available**

The institutions' accounts of where their preferences would lie if they were able to work more intensively with digitisation, leave little doubt that much interesting material could be made more easily accessible for various user groups if digitisation had higher priority. The answers also give the clear impression that the institutions have ambitions and specific, positive ideas in respect of further work in the area.

# THE NEED FOR DIGITISATION

The White Paper no. 22 (1999-2000) *Sources of Knowledge and Experience* (the ABM Report) indicates that one of the six major challenges facing the ALM domain is to capitalise on the potential posed by new technologies to create access to the materials in archives, libraries and museums. The ABM Report remains the core reference document for government policy concerning this particular sector. The point is repeated and emphasised in the White Paper no. 48 (2002-2003) *Cultural Policy towards 2014* (The Culture Report).

The *e-Norway 2009 – The Digital Leap* project, prepared by the Ministry of Government Administration and Reform, also looks at how a future gov-

ernment will capitalize on and fulfil the opportunities presented by information technology and the knowledge society, and formulates ambitious targets for the creation of digital access to our cultural heritage. Such digitisation constitutes a central tenet of current political aims.

The most important reason for digitising analogue materials is to facilitate user access to them. The effective accessibility to, and dissemination of, digitised materials, through the use of new technologies, can prepare the way towards extensive democratisation and increased use of these materials. Sources of knowledge, which until now have represented inert capital for most

people, are now capable of being accessed by the public at large. Furthermore, digitisation presents new opportunities for gathering materials and the development of services, which also applies across institutional and sectoral boundaries. Thus, the digitisation process usually represents value added to the original analogue materials. An ever-increasing quantity of materials from other specialist sectors is being made accessible through the Internet. If the use of the resources in the archive, library and museum sectors is to be commensurate with their potential, access to them must be correspondingly easy to obtain. This presupposes that the materials exist in digital form.

There are a number of user groups in the ALM domain with a particular need for improved access to the ALM materials through digitisation (the following order is not intended to indicate any priority).

- The general public: All imaginable subjects in the existing resources managed by the ALM domain will be involved, so that there are really no limitations to the associations to which the so-called general public will benefit by access to the digitised materials in archives, libraries and museums. It is, therefore, important that as much material as possible is digitised and made accessible through common websites. In this way, people can seek out the materials themselves as resources for information, knowledge, experience and life-long learning. The availability of access to digitised sources is also of great importance to institutions, specialist sectors, and companies wishing to develop facilities and services for the general public.
- Genealogists and local historians are keen users of the institutions in the domain and

will benefit greatly from better access to digitised materials. The work of a genealogist is greatly facilitated by the provision of access to personal data in digital format, as is the work of a local historian by access to digital data relating to localities and place.

- Researchers: For researchers in many specialties it is a basic premise that they can access source materials and resources from different archives, libraries and museums. The needs of historians for personal data illustrate this point, for it was their needs that lay behind many of the early initiatives to digitise materials in the ALM domain. Researchers require the widest possible access to primary source materials and the opportunity to download data for processing.
- Students: Students at advanced levels have similar needs to those of researchers. For the rapid collection of data, and thereby the ability to meet the ever-increasing demands for speed in completing higher education courses, it is important to have digital access to materials. Students at lower levels have

needs that are akin to those of primary and secondary school pupils.

- School pupils: Pupils in primary school, students in secondary schools, and teachers at all levels have a long tradition of using materials from the ALM domain for teaching and learning. The new curricular demands in Norwegian schools for digital competence, and the increased use of web resources and digital learning materials, require that a broad range of materials from the domain be adopted and made accessible for school use.
- Tourism: Culture and cultural history are important for tourists; relevant materials from the ALM domain should, therefore, be accessible in digital format and should be linked to the resources that those who wish to learn more about tourist destinations commonly turn to.
- Publishers and the media: Publishing houses and the media need background materials, literature, and other sources from the domain. Important among these are photographs and other illus-



tration materials. Effective use can be made of digitised versions of these materials. Digitisation is necessary if materials are to be repeatedly used for publications.

- **Public administration:** In a wide range of areas, the materials in the ALM domain contain information of great importance for public administration work. Easy access to digitised materials will greatly facilitate and simplify this work.
- **The institutions themselves:** The digitisation of materials is also useful to the institutions which are in charge of managing them. Through digitisation, procedures are simplified, administration and management are made more efficient, and it is easier to provide help to the users, with less outlay of resources. Digitisation can also provide an important preservation method, as an alternative to the (physical) conservation of analogue materials.

The extent and diversity of the analogue materials managed by the ALM institutions is considerable. The survey car-

ried out by the Working Group revealed that a very small portion of these materials has thus far been converted to digital format. Only just over a third of the institutions in the ALM domain are currently working on the digitisation of their analogue collections. While some initiatives and activities have been reported, and a considerable amount of material has been digitised, the conclusion is that the effort so far has been fragmentary, and that little progress has been made in relation to the very extensive analogue collections in existence. The situation is somewhat more positive with regard to digital catalogues; three quarters of the institutions either possess or are developing digital catalogues. The archives and libraries are at the forefront in this area, while the museums appear to be lagging somewhat behind.

While progress in digitising the collections in the three sectors has been somewhat disappointing, the survey has also revealed that the institutions have both the ambition and the willingness to progress with the work, but are short of funding. A large proportion of the insti-

tutions that replied reported their interest in moving ahead with work on digitisation and indicated what their priority areas would be if they had the resources. Their answers leave little doubt that much interesting material could be made available for easier access to a number of user groups if the field were targeted for greater investment.

There is a large gap between, on the one hand, the stated political aims, the needs of society and the individual, and the ambitions of the ALM domain itself, and on the other hand, the efforts made and resources allocated on the other. There can be no doubt that a need exists for a lasting, concerted and co-ordinated national initiative to enable the domain to meet this challenge, and to create access to the sources of knowledge and culture that are managed and preserved in the archives, libraries and museums.

#### **Initiatives:**

- A concerted and co-ordinated national initiative should be made to create access to the sources of knowledge and

culture managed by archives, libraries and museums. This report should form the basis for such an initiative. The Norwegian Archive, Library and Museum Authority should take on the task of co-ordinating the initiative and commence consultations, in relation to the report, with the ALM domain before work is begun.

- As an essential part of the national initiative, a programme for the retrieval of sources should be established to permit the high-level production of digitised content from the domain. The aim is to create access to a large and representative part of the ALM domain collections which were originally available only in an analogue format.

Several examples of the views expressed by the institutions in the ALM domain, concerning which parts of their own materials they would select first for digitisation, are set out in Section 7.2 of the Survey Report. As an indication of how wide and varied the needs for digitisation are, and to identify the type of work and materials

involved, we have chosen a few examples from several possible responses and listed them below (not in order of priority):

A search by a search engine such as Google reveals that there are not nearly as many digital reproductions of the works of Norwegian pictorial artists available on the Internet as is the case of artists from many other countries. A large-scale effort to speed up the digitisation of works of art in the museums would help rectify this.

In the library sector, attention should be drawn to the work recently started in the National Library to digitise the entire collection.

In the archive sector, we would mention the proposal put forward by the Norwegian Demographic Society to extend the national register back to 1801 with the help of an extensive transcription of censuses, church registers and other personal data.

## GENERAL PRINCIPLES AND CRITERIA FOR SELECTION

In an ideal world one would wish to digitise all the materials that are of potential interest. However, as mentioned above, the domain contains a very large amount of material and, realistically, it is therefore necessary to be selective. The Working Group mandate required it to “provide suggestions in order to establish general principles and criteria for the selection of Norwegian sources of knowledge to be digitised”. However, as a means of guiding the selection towards a particular policy at the national level, such criteria in themselves can only be of limited value. The priority given to the various criteria will inevitably vary from case to case, depending on the purpose of the project in hand, the mate-

rials that are managed by the particular institution, and, more generally, the overall aims of the activities of the institution. In addition, the criteria will produce different effects in different types of institutions and when applied to different types of materials.

It is nevertheless important that such general principles and criteria for selection are available to different interested parties when developing plans for their digitisation activities. These criteria will help ensure that the selection fulfils as many needs as possible in a situation where resources are limited. The aim is to achieve digitisation of the broadest and most representative selection of the institutions’ collections.

A similar result will be achieved on a nationwide scale by embarking upon a national initiative to implement a comprehensive digitisation process.

The survey revealed that few of the ALM institutions engaged in digitisation employ a systematic strategy for the selection of materials, at least to the extent of drawing up such a strategy in writing. However, the codification of plans and priorities is important for the purposes of long-term planning and co-operation. The museums take the lead in terms of such work, although only around half of them reported that they have developed written plans and priorities for digitisation. Of the libraries, only a third have done so, and just

under 50% of the archives have carried out such work.

The Working Group proposes the following general principles and criteria for the selection of Norwegian sources of knowledge for digitisation. (The order is not intended to indicate any priority. None of the criteria are intended as an absolute condition for the selection of materials, but should be evaluated and considered from different points of view.)

- Digitisation will facilitate access to materials that are frequently used in their analogue format.
- Digitisation will facilitate access to materials that are required or requested by several user groups, some of which may be particularly large.
- Digitisation will facilitate access to materials that are especially difficult to access.
- The materials are of particular current relevance (e.g. an anniversary, a commemorative year, a public debate, etc.).
- The materials are of particular national interest.
- The materials are relevant to an integrated range of services offered by the institution and/

or by co-operative ventures beyond the institution's remit.

- An explicit request has been made for the materials (e.g. related to a research project, the development of a digital learning resource, and so on).
- The materials are suited to being published and shown on a computer screen.
- The materials have the potential for digital processing and/or analysis.
- Digitisation will protect fragile original materials or materials exposed to wear and tear.
- Digitisation is required due to the risk of degeneration of the original medium or a lack of recording equipment.
- Digitisation is not unreasonably costly in comparison with digitisation of other materials.
- Technological solutions are available which make digitisation today cost-effective.
- No other digitised versions of the materials are already in existence.
- The materials will complement other digitised materials.
- No other digitised materials exist providing information on the subject.
- Digitisation will not endanger or damage the original.

- Digitisation will simplify and improve the institution's internal routines and procedures.
- There are no legal obstacles to the process of digitisation itself, or to the creation of access to the digitised materials (e.g. copyright, privacy rights, etc.).

The Working Group proposes the following complementary guidelines for the use of the criteria:

- Any digitisation should be carried out from a user's point of view, and with the desire that access to the materials in the ALM domain be as wide and democratic as possible. To ensure a high level of use of the digitised materials, it is important to identify what the user needs are for the materials selected for digitisation, whether they are currently in popular demand, or whether requests have been made for the materials. To this end, it is important to consult with particularly important user groups, so that they can influence the major policy decisions taken in respect of digitisation. The one exception to the primacy of user needs

is the need to digitise for the purpose of avoiding loss of the materials, although, even in such cases, there should be an underlying assumption that a user need may arise in the future. It should, however, be borne in mind that the digitisation of a certain type of material often leads to requests from important user groups for the further digitisation of the same type of materials. This can lead to unfortunate distortions in the selection, with additional attention and precedence being given to materials already known and user groups already active. It is important to be aware of such tendencies, and, if necessary, to take steps to counteract them in the selection process. It is essential that many different user groups are provided with the materials they need, both in terms of content, type of original materials and digital format.

- The way the criteria are applied and the precedence they are given in relation to individual projects will depend upon, and vary, according to the primary aim of the project. It is, therefore, essential that a

clearly defined aim is worked out for all digitisation projects. An example of such an aim could be to determine which service the materials will be included in. This type of aim should be formulated in cooperation with user groups and be seen in relation to the primary aims of the institution or the region.

- The choice of subject, epoch, geographic location and types of materials, all different aspects of the aim of the project, must be considered in relation to the criteria for selection. In a project with limited resources, if preference is given to one aspect it will be at the cost of another, and the various elements must therefore be seen in relation to each other. A long epoch may be chosen at the expense of a geographical location, or a desire for a variety of material types may limit the breadth of the subject at hand.
- Material converted to a digital form, unlike analogue material, is capable of being adapted for use across a range of different services, meeting the needs of a variety of user groups, and satisfying several

of the criteria set out above. As a general rule, it could be said that the more applications the digital materials can have, the higher the priority should be for their selection for digitisation.

- Just as the same digital materials can be used across different types of services, some services require different types of digital materials. It is, therefore, important to consider the question of priority in relation to other digital materials, both those that were created in this format from the outset and those that have already been digitised or will be given precedence in the selection for digitisation, both inside the institution and in other institutions.
- It is necessary to consider both the project planning and the selection in relation to available resources (finances, equipment, competence, etc.). Thought must also be given to the time factor so that the expenditure of resources will produce a result for the users within a reasonable time. (In this connection, the option of part-publication should also be considered.)

- In order both to ensure that democratic processes determine the selection, and to enable the users to evaluate trends and contexts in relation to the materials chosen, the criteria and reasons for selection should always be documented and made available for discussion. This process is also a necessary precondition for integrated planning reaching beyond the framework of the individual institutions.

One form of user participation in the selection process is “digitisation-on-demand”, where a request by a user for a loan or a copy of, for example, a book, a photograph or an archival item leads to the digitisation of just this object. When a satisfactory infrastructure is in place in the domain – as described in this report – all institutions carrying out digitisation should be able to deliver this service. However, this approach is not appropriate as the only way to determine the selection since the composition of such digitised materials would be too haphazard to be included in integrated services.

When establishing a national programme to encourage the

large-scale digitisation of the materials in the ALM domain, these same general principles and criteria should be used as the basis for the programme. At the same time, such criteria should be seen in conjunction with a desire to develop a serviceable integrated structure of digitised materials at the national level, for example, the desire to create content for particular types of use, or to create services for dissemination of the materials.

#### Initiatives:

- The Norwegian Archive, Library and Museum Authority should send out the Working Group’s proposed General Principles and Criteria for Selection of Norwegian Sources of Knowledge for Digitisation for the purposes of consultation with the ALM domain and other relevant parties. After consultation, the criteria should be published and communicated across the ALM domain, together with the guidelines, to serve as tools for use in the planning processes.
- For the purposes of establishing a national digitisation

programme of materials in the ALM domain, the general principles and criteria for selection should form the basis for the priorities decided upon in the programme.

In the selection of materials for digitisation, it is important that methods are worked out to avoid duplication. It should thus be possible to determine whether the materials already exist digitally. If a national infrastructure is established for the integration of all the materials (cf. Section 6.3), it would be able to deal with the need to avoid duplication.

# KNOW-HOW, INFRASTRUCTURE AND LONG-TERM PRESERVATION

New technology has had and will continue to have dramatic consequences for the way the ALM domain thinks and works. New competencies are required, new demands are made for infrastructure and equipment in the domain, and there is a change in the type of facilities and services the ALM domain is required to supply. The survey asked the institutions what circumstances would have to exist for them to proceed with the digitisation work. In their choice of eight pre-set alternative responses, internal conditions such as better equipment, improved competencies and, in particular, a better financial base and increased personnel resources, were chosen as important prerequisites

to continuing the work. External conditions such as centres of expertise to provide advice or services, help from networks, or the need for guidelines were valued somewhat lower.

## 6.1 Competencies and personnel resources

There is undoubtedly a need to strengthen the competencies required for digitisation, digitised materials and digital dissemination in the ALM domain. Firstly, there is a need for a type of competence not traditionally recruited by the domain, namely individuals with technical training and experience. There is also a need for continued education and training programmes for those already employed in the domain.

Furthermore, there is a need to develop subject specialty knowledge, and for research to establish the basis for educational programmes and activities in the institutions.

The issue of competence is closely linked to that of attitudes held towards the activities of the domain. There is a need for increased awareness of the usefulness of new technology and online dissemination. Low levels of competence, a lack of interest and poor understanding of the need for, and usefulness of, digital services prevent the development of effort and the change of focus needed to achieve the desired level of digitised materials and digital services available from the ALM domain. A change in

attitudes and levels of knowledge is needed in order to make digital facilities and services an integral and central part of the effort to fulfil the aims of the institutions. An understanding of online dissemination as the primary channel of communication between the institutions and the users should be encouraged.

#### Initiatives:

- As part of its information and development activities, the Norwegian Archive, Library and Museum Authority should emphasise that it is digitisation, the preservation of digitised materials, and the provision of digitised services, which constitute the primary challenge now facing the ALM domain.
- The Norwegian Archive, Library and Museum Authority should, in co-operation with major relevant organisations, initiate training programmes in the field of digitisation and the handling of digitised materials for employees in the three ALM sectors. The training must be based on competence derived from experience, sound technical

frameworks, and guidelines which are discussed in other parts of this report. The training should be both practical and visionary.

- Together with major relevant organisations, the Norwegian Archive, Library and Museum Authority should approach the educational institutions with a view to getting these institutions to include in their programmes and curricula issues relevant to archives, libraries and museums concerning digitised materials and digitised dissemination.

In order to achieve a level of effort in the domain commensurate with the expected volumes of material and services that will be available on the Internet, more funding for personnel must be directed to the work. Although the institutions themselves can, to a certain degree, provide for this by re-organising activities and giving higher priority to such tasks, there remains a need for resources on a scale which cannot be met by the general budgets of the institutions. At the same time it is important that most of the capacity-build-

ing and skill improvement be concentrated within a limited number of organisations (cf. Section 8.2).

## 6.2 Equipment and infrastructure

With respect to infrastructure and equipment at the regional and local levels, it is very important to stimulate co-operation and co-ordination so that investment can be targeted at the relevant selected institutions. This will save resources and ensure high grade equipment to provide both good quality and efficiency in the production procedures. The process should also be seen in the context of the development of competencies. The requirements for investment in equipment and infrastructure will depend on how tasks are divided and what organisational structure is chosen, cf. Section 8.2. At the very least, however, the following provisions must be in place to support a regional ALM environment:

- Adequate equipment such as computers, printers, scanners, digital cameras, etc.
- Ergonomically designed work stations.

- Internal networks with high bandwidth.
- Broadband connections to the Internet, with adequate capacity.
- Secure and fast access to integrated databases and digital repositories of catalogues and digitised materials, cf. Section 6.3.
- Speedy and flexible capabilities allowing the publication of data on the Internet.
- Appropriate tools for the publication of all types of information on the Internet, including the creation and operation of homepages, the production and maintenance of web-based exhibitions, and solutions for the publication of information to mobile users.
- Appropriate solutions for the publication of information on digital maps.
- Appropriate solutions for interactive communication with web users.

A number of institutions and organisations at the regional level already have some of the above in place, but in many regions much work remains to be done before the infrastructure and the equipment will have reached a sufficient level for digitisation and digital dissemination to be carried out in a proper and adequate manner. The survey shows that there has been insufficient overall investment in equipment, and that high-level investment in the search for new and effective solutions for digitising our cultural heritage must involve a much higher degree of investment in equipment. The Working Group proposes that the issue be resolved at the regional level through a co-operative effort between central government, the county councils (regional) and municipal councils, cf. Section 9.2.

The choice of equipment and

software, and the use of these should be part and parcel of any training programmes established, cf. initiatives in Section 6.1.

Such basic preliminary conditions are available in part in many of the institutions at the national level, although many institutions still lack the equipment necessary to maintain operations at a sufficiently high level to ensure good progress. Many institutions at this level possess collections of such a magnitude that the appropriate approach would be for each of them to receive high-level investment. The investment requirements are far too great for them to be accommodated within existing budgetary limits, so that, in this respect as well, the levels of investment should be raised considerably. Such investment will be the responsibility of the institutions' proprietors and, in terms of the



national institutions, this largely means the Government.

Although it would by and large be proper to make investments on the basis of the individual institutions' needs in this area, for some types of equipment there will also be a need for co-ordination and co-operation. This may be the case in respect of equipment for the digitisation of special materials such as audio and video, or where particularly expensive equipment such as microfilm scanners is involved.

#### Initiatives:

- Working with the principal institutions, the Norwegian Archive, Library and Museum Authority should initiate the development of a system for the effective integrated use of specialised competence and equipment. In this regard, the ALM domain is an obvious partner for other sectors with

similar interests, especially the university and university college sector and the sectors working with conservation issues pertaining to our natural and cultural heritage (natur- og kulturminnevernet).

### 6.3 National integrated solutions

National online solutions should be devised to simplify the process of digitisation. These could be linked to the work to create access to the materials, and, just as importantly, lay the foundations for their long-term preservation. Integrated solutions will force standardisation, which in turn will enhance the prospects of creating access and ensuring preservation over time. The Working Group envisages online solutions for the production process, with links to national digital repositories for

preservation. By “production” is meant digitisation combined with the construction of catalogues and other classes of metadata.

#### 6.3.1 Tools for cataloguing and catalogue data

The tools most commonly used for cataloguing ALM materials should be made available, by means of an online solution, to institutions working with catalogues, where they would work with a central database on a daily basis. The solution must allow institutions full access to their own data, which would be retrievable and ready for publication on the Internet whenever an institution requires it. The data must be securely deposited in the central system. The institutions need not concern themselves with technical operations and the preservation of the catalogue database, but can instead concentrate on production.



Asta has been established as the central cataloguing tool in the archive sector. Similarly, most of the museums use WinRegimus or Primus. (WinRegimus is to be phased out and the users will be transferred to Primus. The university museums have evolved their own solutions for their catalogues through the Museums Project.) Both Primus and Asta are already being used to set up central production databases.

These types of solution are in part already established in the library sector, an example being Bibsys. The solutions do not, however, include all libraries, many of which operate their own catalogue databases. Selected libraries deposit their catalogue data in the common link-based catalogues, but not all the libraries do so. The needs and options in the library sector are also different from those of the archives and museums since the sector has several different catalogue systems in use.

#### Initiatives:

- In connection with the development of a national infrastructure for digitisation, the databases Asta and Primus

should be developed to allow them to function as tools for national online production databases for catalogue information. Consideration should be given to the extent to which there is a corresponding need associated with the various library systems.

#### **6.3.2 Digital collections**

Equivalent solutions should be established for digitised versions of the contents of the collections themselves. This involves more complex issues since the materials are highly varied and will require preservation in many different formats. The Working Group foresees several alternative solutions: 1) The classification of materials based on different material types, or 2) the classification of materials based on catalogue tools. Other possibilities are presented by various combinations of these alternatives.

##### **1) Classification of materials based on different material types:**

This alternative would partly use material-specific digital collections that are already in

existence as a starting point, and develop these further. Examples of such collections are *The Digital Archive* of the National Archival Services of Norway for archival materials, and The National Library's *Galleri NOR* for photographs. One advantage of this solution is that each collection would include similar types of materials and thus would be limited to similar formats, standards, etc. Galleri NOR has already been developed to serve as an integrated solution, where institutions other than the National Library can deposit their digital photographic collections. The Digital Archive also permits other institutions to publish their own materials through the so-called Digitalpensjonatet ("the Digital Boarding House"). Talks are also under way between the Association of Local and Private Archives (Landslaget for lokal- og privatarkiv) and the National Archival Services of Norway with a view to achieving more systematic development of the Digital Archive to become an integrated solution for the whole archive sector.

Digital collections or repositories classified according to the

type of materials could be based upon, for example:

- Materials that are typical of the library sector, e.g. digitised versions of printed and published materials, consisting primarily of formatted text, both scanned and OCR read;
- Materials that are typical of the archival sector, e.g. digitised versions of unpublished, often handwritten materials, consisting primarily of text or figures, both scanned and transcribed;
- Materials that are typical of the museum sector, e.g. digitised catalogues of museum artefacts, with digital photographs of the objects.

An alternative classification system could be, for example, based on the following:

- Photographs, possibly combined with other types of pictorial materials such as artworks and graphics;
- Illustrations;
- Maps and other geographic information;
- Sound;
- Moving images.

There is, however, the problem that the digitised catalogues

and the metadata for digitised materials are not always compatible. Both a technical and practical advantage would be derived if the digitised materials and the catalogue information, with respect to the same original materials, were kept in one location, both for the digitisation process and for the accessibility of the materials.

## 2) Collecting materials on the basis of tools for cataloguing

Another solution would thus be to develop the central catalogue tools with the accompanying central operating solutions, so that the digital versions of the contents of the collections themselves would be linked to the catalogue information. This has the advantage that the collections, or the deposit into central repositories, would be generated as a part of the production process using the tools already employed by the institutions. In this case, it is the use of these tools that would determine the classification of the digital collections. Today Asta provides solutions for typical archival materials, in addition to photographs, maps and illustrations. Primus

provides solutions for artefacts, buildings, photographs, film and sound, and work is under way to include art works which are currently registered in the database Imago. The databases of the Museum Project store different types of materials for university museums, and this should also be seen in conjunction with the solutions available across the museum sector. The library systems handle materials typical of the sector such as books and periodicals. In addition, various systems have also developed solutions for other types of materials administered by the libraries.

There is to date no integrated solution for catalogues and digitised materials at the national level, although such a solution has been developed for digitised materials in the counties of Sogn og Fjordane and Møre og Romsdal.

Regardless of what types of integrated solutions are developed for the digitised collections, there must be provision for their safe preservation, with operational issues and issues of long-term preservation being resolved simultaneously. The institutions in charge of the

original materials must have easy access to the different qualities of the digital versions of the materials, which must be available for easy retrieval with a view to publication on the Internet whenever required by the institution.

Based on the alternatives outlined above, further clarification is required regarding how digitised materials should be distributed in digital repositories, to whom responsibility for them should be given, and how a possible connection with national solutions for production tools could be organised. Such work should be carried out in co-operation with established interested organisations which themselves may be possible partners in the operation of the repositories.

The National Library currently has some responsibility as a digital repository for materials from the library sector as a whole, although no system has been evolved to ensure the inclusion of all the digitised materials covering the domain. The National Archival Services of Norway handle the preservation of large volumes of the electronic archive from the pub-

lic administration but has not been charged with the work of developing integral solutions for the preservation of the digitised materials. Both these interested organisations possess high levels of competence in this field.

### **6.3.3 Long-term preservation**

The long-term preservation of digital materials presents a completely new challenge for the ALM domain. It is important that work be carried out not only to preserve the data, but also to ensure that it will remain readable in the longer term. This work requires high levels of competence and resources, and a systematic and planned approach is necessary for a successful outcome. Appropriate file formats must be chosen for a series of requirements, e.g. openness, accessibility, dissemination, self-documentation capabilities, external dependency, patent restrictions, and internal technical constraints, and a continued migration of the data must be carried out. It must be established beyond doubt that the data warehouses have the necessary longevity, and all must be handled in an infrastructure

where the data is monitored, as far as possible, automatically. A set of rules and procedures must be in place for the maintenance and control of the files, to ensure, for example, that they are not damaged or manipulated. Secure digital repositories providing the necessary metadata for long-term preservation are technologically complex installations.

A disquieting feature revealed by the survey was that neither catalogue materials nor digitised collections were, to any appreciable degree, covered by strategies for their long-term preservation. Even in the cases where such strategies were reported, almost nobody appeared to be overcoming the challenges inherent in genuine long-term preservation. It is the view of the Working Group that these issues demand such a high level of both competence and resources that is essential that the undertaking be concentrated in just a few professional bodies. National integrated solutions as described above will encourage the development of standards for the work, which will enhance the prospects of successful long-term preserva-

tion. At the same time these solutions will help compile the materials in a manner that will prepare the way for integrated processes for long-term preservation.

**Initiatives:**

- Lines should be drawn up for the creation of integrated digital repositories for the long-term preservation of digitised

materials at a national level. The National Library, the National Archival Services of Norway and the Norwegian Archive, Library and Museum Authority should, in co-operation with others, report further on how best to distribute the materials among such repositories, and who should be responsible for them. The solutions sought should be

seen in the context of the materials held by, and the needs of, the university and university college sector.

**6.4 Standardisation, guidelines etc.**

The lack of co-ordination and standardisation of communication between different systems, solutions, metadata, and formats poses a major chal-



lenge for the achievement of integrated solutions for creating access to, and the dissemination of, digitised materials, and for their long-term preservation. The mapping survey shows that few standards are mentioned in relation to digitised materials, and much material does not appear to be included in a standardised way. However, the high level of utilisation of the relevant standards, where they exist, indicates that there is a desire to use them whenever possible. The number of catalogues based on MARC emphasises the same point in respect of catalogue materials. No equivalent standards are mentioned for museums and archives, but it is a positive feature of catalogue materials that most use national solutions and systems. The area of standardisation and guidelines is one requiring new initiatives.

#### **6.4.1 Technical frameworks**

This issue has been receiving attention through the Framework Project organised by the Norwegian Digital Library. The final report of the Framework Project was submitted in January 2006; its considerations,

recommendations and proposals for action are particularly relevant to the library sector, although further clarification is required for the archives and museums. The Working Group has, therefore, not worked out detailed recommendations in terms of technical frameworks, but has chosen to make certain broadly based comments and proposals for action.

The main focus of the first phase of the Framework Project was the establishment of a framework in the form of accepted standards to ensure that different services are able to “communicate directly”. In addition, the Project was asked to propose a set of basic services that would be able to offer general functionality to all other services, some of which will be developed as pilot projects. The recommendations made in the final report and the reports of the various working groups relate to standards and guidelines for digitisation and for the accompanying metadata, as well as recommendations for an infrastructure for searches across catalogue confines, for access control, paid services and systems architecture.

An obvious problem in terms of the work carried out to date by the Framework Project is that the recommended metadata standards all relate to the library sector, although Dublin Core can be applied to most online resources. Insufficient work has thus been carried out in respect of archival and museum materials, a fact reflected in the conclusions of several of the Working Groups. In particular, it is important that a technical framework for accessibility and dissemination is set up to cover all the three domains that make up the ALM domain. Work on this must conform to the standardisation work in international organisations, e.g. IFLA, ICOM-CIDOC and ICA.

#### **Initiatives:**

- In relation to the continued development of a technical framework, the Norwegian Archive, Library and Museum Authority should pay particular attention to the interrelationship of the framework that covers the archives, libraries and museums. The framework should also be seen in the context of the needs of the educa-

tional sector to be able to use archive, library and museum materials for teaching purposes (from primary school to the university and university college level), and furthermore the need to integrate the extensive digital materials of the university and university college sector.

- The standards, formats, etc. supporting a technical framework will alter with time. Consequently, the Norwegian Archive, Library and Museum Authority should establish a system of continued maintenance. Current frameworks should at all times be publicised to the relevant interested organisations and be easily accessible on the Internet, together with instructions and guidelines.

#### **6.4.2 Guidelines**

In addition to a technical framework, there is also a need for instruction and guidance materials, to enable different interested organisations to conform to the structure of the framework when carrying out digitisation projects and developing digital services. These materials might consist of guidance linked

to a certain type of material, as represented by the Norwegian Archive, Library and Museum Authority's guidance for the digitisation of photographs (*The Digitisation of Photograph Collections* ABM Publication no. 1). Another form of guidance could relate to different steps of the digitisation process, as in the recommended guidelines for work on selection, cf. Chapter 5. There could also be guidance for the development of available services, cf. Section 7.3.1.

It is the view of the Working Group that this type of material will be an important contribution to the adoption of an agreed technical framework by the interested organisations which will be engaged in digitisation. It will contribute to the standardisation which is essential for an integrated approach to the creation of access and long-term preservation. Appropriate access to guidance material will also help to rationalise the domain as a whole.

#### **Initiatives:**

- In co-operation with relevant interested groups, the Norwegian Archive, Library and Museum Authority should

prepare an overall plan for the development of instruction and guidance materials where required. The task of devising individual instruction and guidance should be given to the particular special-interest groups.

- There will be a continuing need for change and updating of these materials. The Norwegian Archive, Library and Museum Authority should, therefore, establish a system of continued maintenance. Such maintenance should be undertaken by the relevant interested organisations. Current instructions and guidelines should at all times be publicised to the domain and be easily accessible on the Internet, together with the technical framework, etc.

## CREATION OF ACCESS, DISSEMINATION AND FURTHER PROCESSING OF THE MATERIALS

It is of little relevance to the individual user whether a particular item from the archives, libraries and museums exists in a digital format if it is not accessible to him or her. The mandate requires the Working Group to provide an assessment of how materials can best be made accessible and disseminated to different user groups. In this regard, the issues of dissemination, competence in the handling of digitised materials, and the user groups are particularly important, and it is essential to establish co-operation with the users and other sectors of society.

The mapping survey reveals that there are some digitised materials and, in particular, digital catalogues that are not gen-

erally accessible. Approximately a third of the digitised catalogues in the mapping survey were entirely inaccessible to the general public, a little more than a third were openly accessible and less than a third only partly accessible. The catalogues in the library sector are largely accessible, the catalogues in the archives are relatively open to access although there is still a need to extend their accessibility, and in the museum sector only a few catalogues are openly accessible. In respect of the latter there is a great need to improve accessibility.

Almost half the digitised collections identified in the survey are openly accessible to the public, while almost a quarter are only partly accessible. Again

it is shown that the collections in the archives and the libraries are relatively open to access, whereas the digital collections in the museum sector are less accessible to the general public.

### Initiatives:

- When allocating funds from a national programme of digitisation in the ALM domain, account should be taken of the degree to which the digitised materials is capable of being made accessible to the user.

### 7.1 Integrated websites at the national level

In Section 6.3 we recommended the establishment of national integrated solutions to permit the creation of comprehensive digital collections. In relation to

these digital collections, websites should also be developed giving the users direct access to the materials.

When the users are searching for materials of a particular type or from a particular part of the domain (archives, libraries or museums), but are not searching for collections of materials relating to a particular subject, it would be helpful if such materials were concentrated in a single website offering uniform and adapted retrieval facilities and presentation of such materials. Today, the Digital Archive offers such capabilities for archival materials, as does Galleri NOR for photographic materials.

Alternatively, it would help if catalogue data and digitised materials are integrated into the same solution. To date, no such integrated solution for catalogues and digitised materials exists at the national level, although an integrated solution has been developed for digitised materials in the counties of Sogn og Fjordane and Møre og Romsdal. We would also draw attention to the search options on the National Library's homepages, which offer inte-

grated searches for a series of different types of materials.

Basic access to the materials needs to be created for this. Another requirement involves dissemination facilities, perhaps starting with the institutions' homepages, local or regional frameworks, a particular subject, or particular user needs. Such services should be developed for particular parts of the materials. It is important to encourage the setting up of projects for the dissemination. Those in charge of the original materials have an important part to play in this respect. It is a fundamental advantage of digitised materials and of the Internet that the materials are capable of being published and exploited in many different locations.

#### Initiatives:

- When integrated national solutions for production and for digital repositories are established, websites should also be developed giving the users direct access to the materials.

### 7.2 Search portal

The national integrated solutions for production and digital

repositories must be based on current metadata standards for the different types of materials, and the presentational format of participating websites must be tailor-made for these. The standards for the different types of materials will contain important differences although they will have some core elements in common. Almost all digital objects in the ALM domain, in addition to having a *title* and a qualitative *description*, can be allocated metadata in respect of *time* (for content or origin), *location* (for content or origin), *topic* (from thesauri or topic maps), *extent* (both absolute and in relation to a whole), associated *persons* (in different roles), relation to *other resources* ("part of", "contains", "successor", etc.), *material type* (original) and *digital arrangement* (format, and so on, following digitisation). These metadata elements, perhaps extended to include the whole of Dublin Core, will, in the view of the Working Group, form a solid basis for the development of a search portal (integrated search) to the national websites mentioned above, to provide the users with the desired inte-

grated overview, and also to enable searches across different types of materials.

The name of the new search portal should refer to the ALM domain as a whole and not just to one of the three sub-sectors.

As from the autumn of 2006, the establishment of such a search portal will be a major initiative for the Norwegian Archive, Library and Museum Authority and the Norwegian Digital Library. The issues confronting the archives, libraries and museums will vary somewhat in respect of the form of the search. It is, therefore, important initially to work to develop the separate areas and the separate types of materials, but always with a view to their inclusion in a national search portal.

One important choice is whether the search portal should be designed to include searches of the digitised collections as well as the catalogue data or not. It is the view of the Working Group that the portal should provide opportunities for both types of search. It will be important in this regard, however, that the user is clear as to what category he or she is

searching, and that the user can choose whether to target only catalogue data or whether the search should include both catalogue data and the textual content of the collections. It must also be clear that the search options are different depending on whether the materials are accessible in a text format or not.

To make the search more user friendly, user guidelines should be prepared; the introductory film for searches in the Danish Bibliotek.dk provides a good example of the design of such guidelines.

#### **Initiatives:**

- In co-operation with the major interested organisations, the Norwegian Archive, Library and Museum Authority should continue work on the creation of a search portal for digitised materials in the ALM domain.

### **7.3 User-adapted dissemination solutions**

The materials contained in the ALM domain are not always immediately or easily available for use, even if they have been converted to a digital format

and the users have access to them in a technical or practical sense. To optimise the usefulness of the materials, further processing and modification are often required for particular user groups or for particular areas of use. It is important that this work be carried out in consultation with user groups and be based on accepted standards.

The mapping survey has shown that only limited work is being carried out in the institutions in the ALM domain to ensure that the materials are being modified further with a view to increasing their usefulness. Only a few catalogues are being converted with accessibility in mind. The situation is a little better in relation to the digitised collections, although only half of these have been converted. In order to make these materials not only functionally accessible, but also accessible and useful in real terms to a larger number of users, there is an important need for more investment in their conversion and adaptation.

#### **Initiatives:**

- When allocating funds from a

national programme of digitisation, it should be stressed that the materials should be capable of being adapted and arranged for different user groups and different needs. Importance should be given to such a provision if it is a part of the project.

### **7.3.1 Criteria for high quality online archive, library and museum services**

One of the challenges involving the processing of the materials and the development of user adapted online services is that no established criteria exist to serve as a model for a high quality online service to be offered by the ALM institutions. A similar problem arises in relation to the selection of resources to be digitised, since such selection should conform to a set of overriding aims set out for the project. A high quality service for a particular subject will often require the co-operation of several institutions. (In this context, the term “subject” is intended to mean, for example, a person, a geographical location such as a region, or a topic.) The Working Group proposes the following criteria

for a high quality online service from the domain:

- The service provides an overview of and access to a broad range of different types of materials (e.g. literature, archival documents, digital photographs of objects, historical photography, sound, and moving images);
- The subject and selected parts of the materials are presented by means of articles, descriptions, web-based exhibitions, etc.;
- The service provides several different access points to the materials (e.g. search options, timelines, map location, topic maps, etc.);
- The subject and the materials are adapted to suit different user groups at different academic levels;
- The service provides interactive communication between the user and the service provider, for example, by means of a question-and-answer service;
- The service contains up-to-date information, or reference to such information, on the subject;
- The service has been developed through the co-operative effort of several institutions

and professional bodies, providing different material suppliers and different approaches to the subject;

- The service is available in several languages;
- The service takes account of guidelines for standardised formats;
- Access to the service is available via mobile equipment (e.g. GPS, PDA, mobile telephone, etc.);
- The identities of the institutions and interest organisations that have provided the materials and contributed to their adaptation are clearly stated.

#### **Initiatives:**

- The Norwegian Archive, Library and Museum Authority should develop the Working Group’s proposed quality criteria for, and good examples of, ALM services on the Internet, and subsequently send them out for consultation to the ALM domain. After this round of consultation, the criteria and examples should be published and publicised in the ALM domain to serve as tools to be used in planning processes.

The website Kulturminne Ekofisk ([www.kulturminne-ekofisk.no](http://www.kulturminne-ekofisk.no)) provides an example of an online service by the ALM domain that fulfils several of the above criteria. The site describes the historical development of the Ekofisk oil-producing sector of the North Sea from 1962 to 1998. This material can be accessed from different angles, e.g. through topics such as the domain itself, the rigs, and working life on the rigs, or through different historical points, or through the topics of economy and society. Alternatively, the material can be accessed by clicking on the points of a timeline, on different parts of the domain set out on a map, or on sketches provided of the rigs and other installations. The subject matter is presented in a visual and informative manner and is richly illustrated with photographs, moving images, sound, technical drawings, cross-section images, graphics, etc. Associated searches of the extensive materials (e.g. books and periodicals, films, articles, lectures, photography, objects, radio programmes and technical drawings) are also possible.

Another example of a website

that fulfils several of the above criteria is [www.ibsen.net](http://www.ibsen.net), the official website for the centenary year commemorating the author and poet Henrik Ibsen's death, and the largest worldwide web site about him. It contains digitised versions of most of his well known works and letters, his own illustrations and paintings, and a whole host of other materials. The materials have been collected partly through the contributions of a series of institutions in the ALM domain, not least of which is the universities whose digitisation work is used. The pages also contain up-to-date information in connection with the centenary, including news and an events calendar. The pages are also available in German and English versions. From the point of view of the ALM domain, however, a serious shortcoming is the lack of an immediate or simple list of the institutions in the domain that have contributed to the site, and what materials they have supplied.

### **7.3.2 Archive, library and museum online services for the individual region**

A county or a region often

constitutes a suitable unit for cultural dissemination and for co-operation in the ALM domain. At this level, the materials from the different parts of the domain can be viewed in the context of each other, and within parameters familiar to the users. This is, therefore, a favourable environment for the development of facilities and services. There are several different ways this development work can be done, and some of the types of facilities that the ALM institutions in a county or a region, in co-operation with other partners, can make available via the Internet are listed below. The examples can also serve as a basis for developing services for geographical areas other than a region.

- Search facilities for photographic material of the region's cultural history;
- Search facilities for the artefacts contained in the region's museums;
- Search facilities for the region's artworks;
- Search facilities for the region's archival materials;
- Search facilities for literary works kept in the region (e.g. in the archives, libraries,

- museums and other institutions with book collections);
- Search facilities for place names in the region;
  - Search facilities for music / folk music in the region;
  - Search facilities for sound recordings of, for example, interviews, reminiscences of a life, documentary recordings, etc. in the region;
  - Search facilities for films and video recordings of cultural history;
  - Facilities for integrated access to digitised versions of primary sources such as church registers, censuses, etc. covering the region.

These materials should be processed and adapted according to the criteria proposed above. It

should also be made clear which institutions are holding these materials in the region. The searches should include both catalogues of the materials and the material itself, wherever this is available in a digitised format.

It might be helpful if the facilities offered by the ALM domain and those of other institutions in the region could, through joint ventures, be included in a single online service, containing an overview of other cultural activities, cultural facilities, cultural institutions, and artists in the region. The service could also provide an overview of other online resources related to culture, media comments on cultural matters, and cultural news concerning the region. The regional

cultural networks, working together with Culture Net Norway, would form a natural framework for such facilities. The Culture Network for the county of Sogn og Fjordane is currently being developed according to these principles.

#### **7.4 Map services**

A good way of introducing the digitised materials of the ALM domain can be to pinpoint their location on a map. An example of this type of service is fylkesatlas.no, an integrated service provided by Culture Net Sogn og Fjordane.

To this end, it is necessary to provide easy and reasonable access to digital maps, together with technological solutions for their use and maintenance.

Many counties, municipalities and other organisations have already developed their own map solutions, or they have established such solutions through joint ventures. By using standardised formats such as WMS and WFS, the data can be shared between different map services. In order to build up successful online map-based cultural services, it is important that co-operation is established between the participants working with online cultural services and those responsible for map solutions in the municipality, the county, the region, or in the unit which is most relevant.

International services such as Google Earth (Google) and Virtual Earth (Microsoft) are revealing tools for the future. Traditional maps are being supplemented by aerial or satellite photographs, and navigable landscape designs are becoming common presentation models. Similar broadcast models can be seen in many other areas, from the weather forecast to news bulletins. Solutions for map navigation are becoming standard in cars, involving solutions that are being developed to integrate personal or other

data. It is important that the ALM institutions keep abreast of these developments, and it would be natural for them to be important suppliers of map-based information.

There is a natural distinction between production solutions and solutions for the creation of access for the end user. By production solutions is meant solutions where geographic functionality is integrated and made available for the purpose of day-to-day work on digital catalogues and collections. In practical terms, this means that when employees in the archives, libraries and museums are working on documents or protocols, photographs, objects, films, videos, or sound recordings, they need to be able easily to retrieve the geographic data as part of one and the same work process and link it to the objects. These solutions should be available online and form a part of an integrated infrastructure at the national or regional level, cf. Section 6.3. The next phase of this type of service would be to enable such data to be conveyed to the various local, regional, national or international map services as required. In most

cases, it would be sufficient to fix the location of the objects on a map by means of a web browser and by reading off on traditional basic maps, or by means of geo-referenced aerial or satellite photographs. The solutions should also provide facilities for easy importation and integration of data from GPS.

Some services would require more advanced solutions and equipment for pinpointing a map location, and it is important that also these would be accessible to the relevant institutions. ALM institutions also contain much data that can be located on maps indirectly by establishing its relationship with information already on the map such as addresses, place names, agricultural holding numbers, and similar information.

Whilst these services should have their own dissemination solutions targeted at different user groups, it is just as important that the services can provide thematic groups to other map services via WMS and WFS. The services should have access to the latest maps provided by the Norwegian Mapping Authority, both raster and vector maps, which should

include FKB data (a database containing the most detailed map data) from the municipalities and different types of geo-referenced aerial and satellite photographs. Solutions should also be developed for generating landscape models and navigation functions linked to these. Some commercial operators like Google and Yahoo offer free access to maps; this arrangement could, however, be withdrawn by the operators at any time, and thus does not provide the control and the foundation necessary to support the investment by the ALM domain.

In some cases there will also be a need for access to historical maps, so that it will be possible to link various objects and information to geographic information when this, for example, has previously been based on earlier administrative divisions. This need can be met only by the digitisation of historical maps.

#### **Initiatives:**

- Provision of map locations for digitised materials from the ALM domain could create, in many cases, a user-friendly introduction to materials.

Therefore, in association with the development of a national infrastructure for digitisation, there should be an emphasis on the integration of map services.

- The Norwegian Archive, Library and Museum Authority should contact the Ministry of Culture and Church Affairs with a view to reaching agreement with the Norwegian Mapping Authority for the ALM domain to have access to map and photographic data. This issue should be dealt with and financed in such a way as to cover the domain as a whole.

GIS should be included in the initiatives for the development of competence and the implementation of the directives and guidelines set out in this report, cf. Section 6.1.

### **7.5 Co-operation with the users and other sectors of society**

In order to ensure that the materials and services offered by the ALM domain are helpful to the users, it is necessary that co-operation be established with relevant user groups and other sectors in society in the process

of digitisation and the development of the services. The selection and development of the available services require competences that go beyond those available in the ALM domain alone.

#### **Initiatives:**

- When allocating funds from a national programme of digitisation, importance should be given to the question of whether co-operation in the development of available services has been established with representatives from other sectors in society or with special user groups.

As regards co-operation with other sectors in society, the education sector is of particular relevance. As an overall policy, it is important that the technical frameworks and technical solutions used in the ALM domain are capable of transmitting materials from our cultural heritage to the E-learning and teaching platforms used in the education sector. Reference is made in this respect to the co-operation between the Norwegian Archive, Library and Museum Authority through the

Norwegian Digital Library, and SANU (the co-ordinating group for websites in the education sector). Reference is also made to the experiences gained from the project “Digitisation and the creation of access to culture and learning”, which was carried out jointly by the Norwegian Archive, Library and Museum Authority through the Norwegian Digital Library, *utdanning.no*, the E-standard project, and the National Library (Project Report, the Norwegian Archive, Library and Museum Authority 2006). Such exchange between the domains is, of course, mutual; much digitisation of materials is carried out in the education sector, including much material that is administered by the ALM institutions.

#### **Initiatives:**

- The Norwegian Archive, Library and Museum Authority should continue to develop its co-operation with SANU (the co-ordinating group for websites of the education sector). A detailed statement in relation to concrete development projects is invited.

Another form of co-operation

with other domains in society would be jointly to provide pointers to the materials and services of the ALM domain on a series of other websites. It is especially important that the services offered by the domain which are relevant for schools and education in general should be accessible via websites in the education sector. *Utdanning.no* is a website that today functions as an umbrella meta-gateway for education, and this site would be the natural starting point for co-operative work for better access to the ALM materials for the education sector.

Similarly, the major national websites such as *norge.no* should offer access to the other national websites, the search portal and other resources from the ALM domain. For this, it is essential that the resources are concentrated, standardised and organised. In the same way, the materials and services offered by the ALM domain should be accessible on the websites of local and regional authorities.

#### **Initiatives:**

- It should be the task of the Norwegian Archive, Library and Museum Authority to

work to create access to the services of the ALM domain through the websites of other sectors.

The materials administered by the ALM domain are so extensive, both in content and format, that there are practically no limits to the number of ways the materials can be used. Thus there are a great many potential institutions and sectors that could work as partners in the adaptation of materials and the development of services offered. However, apart from the education sector, some others that should receive special mention are the Research and Development organisations, public administration (at local and central government levels), voluntary organisations, the tourist industry, and other parts of the cultural sector. Reference is also made to the section on user groups in Chapter 4.

There is not much experience of the systematic co-operation with user groups in relation to services available via the Internet. The Digital Archive of the National Archival Services of Norway has tested an arrangement where a reference group

of different categories of users meets the editorial group once or twice a year. In addition, there is an online discussion forum where the users can submit questions and suggestions to the operating group in respect of the data and services available on the website. Once or twice, the Digital Archive has also organised open meetings of users to gather views relating to their needs and wishes.

Another form of co-operation with the users is their participation in the adaptation of the data, an example of which is the use of user knowledge for photograph descriptions. This type of solution could be made open to all users, or be available to a selected few.

Individual institutions or organisations working in partnership should arrange systematic contact with user groups linked to their online services.

#### **Initiatives:**

- In co-operation with selected interest organisations in the domain, the Norwegian Archive, Library and Museum Authority should initiate a project to test and evaluate various forms of systematic

co-operation with user groups linked to online services. The project should also test different methods of evaluating the effect of the services on various user groups and user situations.

### **7.6 Accessibility in a multi-cultural and international world**

To the questions in the mapping survey about the ways in which the digitised materials were processed with a view to accessibility, none of the institutions mentioned adaptation for individuals with a non-Norwegian cultural background, and none mentioned national minorities. As regards languages other than Norwegian, some mentioned translation of the search image and a summary in English. The overall impression, however, was that among the ALM institutions there is not enough thought given to different cultures and international co-operation in relation to making digitised materials available online.

An ever-increasing number of citizens have a cultural and language background other than Norwegian, and they are also entitled to access online

ALM services which will be helpful to them. Therefore, the services and solutions must have built-in multilingual capabilities wherever this is possible and realistic.

Access to the services is not, however, merely a question of language. Another essential element is that the services are felt to be of relevance to those of different traditions and cultures, for example the different national minorities, and in this connection it is important that consultations are carried out with the users, and with different organisations and specialists in the field.

The online service Bazar is a good example of how such facilities could be developed; this service is aimed at different language minority groups in Norway and is available in 14 languages. The service has been created with a view to reaching the users through their own language and their own expectations. The service has been set up by the multilingual library in the Deichman Library. In developing similar services, it would be important to draw on the experiences of the Bazar service.



Furthermore, in view of the increasing international co-operation and the need for access to resources regardless of national origin, there is a need to adapt the services to include other languages, in particular English. Here, too, it is important that work conforms to international standards.

#### Initiatives:

- When allocating funds from a national programme of digitisation, importance should be given to the question of whether provision is made for users with a non-Norwegian culture or language background, and whether there is provision for international co-operation where appropriate.

### 7.7 Standardised formats of online services

All citizens are entitled to equal opportunities for personal development and lifelong advancement. It is important that society does not create obstructions for people with functional disabilities, leading to less favourable conditions for them, and that any opportunities which exist for their full inclusion in society should be

widely publicised. This applies also to the ALM domain and to the services it offers based on digitised materials.

It is important that these concerns are considered even before the process of digitisation begins; issues such as the choice of standards, formats and, for example, the format chosen for digitisation can influence the use of the materials in important ways.

In answer to questions in the survey about how the materials are processed with a view to accessibility, no institutions mentioned the modification of the materials for people with functional disabilities. This would indicate that the ALM institutions are not giving the issue sufficient thought when preparing digitised materials for online access.

In the government's Action plan for increased accessibility for people with functional disabilities (Ministry of Labour and Social Inclusion and Ministry of the Environment, November/December 2004), it is stated that, at all levels, the central, regional and local authorities and the private sector have individual responsibility to meet

such needs in their own sectors. The main strategy of the Action plan is the use of standardised formats, or finding solutions that can be applied universally regardless of functional ability. The importance of reinforcing the use of standardised formats in the archives, libraries and museums should be stressed, as should the introduction on public websites of easy access facilities that comply with the WAI criteria.

Attention is also drawn to the experiences gained from the project “The Accessible Library” (Det tilgjengelige bibliotek), whose aim was to contribute to the universal accessibility of the library in its roles as a source of knowledge, a meeting place and a workplace. This aim includes full access for those with reduced functional abilities. Discussion of the project and the results produced are available on the Norwegian Archive, Library and Museum Authority’s web pages.

#### Initiatives:

- When allocating funds from a national programme of digitisation, importance should

be given to the question of whether universal access has been considered.

- The Norwegian Archive, Library and Museum Authority should continue working to increase the awareness and competence related to the issue of standardised formats, and consider whether further work is needed to improve the instruction materials relating to universal access to the digital services of the ALM institutions.

### 7.8 Search Engines and indexation

The concentration of materials, the creation of a search portal, improved quality in the work with dissemination and service development, and the provision of access to services and materials via the websites of other domains, will all undoubtedly contribute to accessibility of the materials which is better than at present. Nevertheless, a high proportion of the digitised materials in the domain will remain hidden on the Internet, if search engines such as Google are used as the entry point to search for a topic. Often, the materials are stored in the “deep web”, or

in databases where results are generated via direct searches in catalogues or other meta-databases, and which cannot be reached through the ordinary search engines. At the same time, commercial search engines are frequently used. Consideration should be given as to the appropriate degree of indexation of digitised materials and digitised catalogues with a view to making them more visible to the users through ordinary search engines. The issue must be resolved in a way that prevents the materials of the domain from producing irrelevant hits.

#### Initiatives:

- In co-operation with selected interested organisations, the Norwegian Archive, Library and Museum Authority should initiate a project to investigate the appropriate degree and method of indexation of digitised materials, with a view to their visibility to ordinary search engines.

### 7.9 Legal obstacles to the creation of general access

Hitherto, the greatest obstacle to digital access to the original analogue materials in the ALM

domain has been the very fact that the overwhelming proportion of such materials does not exist in digital form. Other barriers to public access to digitised materials are sometimes created by insufficient technical frameworks, a lack of infrastructure in the institutions, and, in some cases, the absence of a tradition of offering access. In some instances, however, there are legal reasons why the materials cannot be digitised and made accessible.

Some of the most important of these legal reasons relate to the regulations governing professional secrecy and the protection of privacy in the Public Administration Act, the Personal Data Act, acts in respect of Health Service Personnel, and Patients' Rights, and the Statistics Act. In addition, there are regulations in the Copyright Act restricting the process of digitisation of analogue materials (reproduction) and it also invokes restrictions on general access, as does the Act on Legal Deposit.

The mapping survey shows that copyright and issues of personal privacy do play some part in the prevention of access

to digitised materials, but no solid data is available to quantify this. Not surprisingly, issues of copyright are more common in the libraries, while in the museums questions of personal privacy are of greater concern. The restrictions imposed by the legal framework are, however, a much greater problem for the creation of digital access than the survey indicates, because the issues involved often prevent the materials being selected for digitisation in the first place. This factor does not emerge in the survey which has only recorded information on materials already digitised.

It is, of course, important that professional secrecy and personal privacy are observed for the maintenance of an essential relationship of trust between the public administration, record keepers, the health service, etc., and the individual. The ALM domain must accept that this will, to some degree, restrict general access to more recent materials. It is important, however, that the regulations are not interpreted with undue strictness, and that every effort should be made to adapt the materials so that part access can

be made available when there is no impediment to this. A case where, in the view of the Working Group, there is a need for the regulations to be interpreted with more leniency relates to the Statistics Act, whose regulations state that personal data collected under the Act cannot be made public before the information is 100 years old. This means that national censuses carried out after 1907 cannot be made public, although local authority censuses can be released after 60 years, leading to an artificial discrepancy between nationally and locally collected data.

#### **Initiatives:**

- The Director General of the National Archival Services of Norway should contact Statistics Norway for a clarification of the Statistics Act in practice. It should be possible to evolve a system of graduated access to materials, subject to constraints related to their level of sensitivity, the user group involved, and the age of the materials.

As for copyright, there is firstly a problem of a general lack of understanding of the subject

across the ALM domain. This probably means that at times certain materials, which for different reasons (e.g. age, type of materials) are not covered by copyright restrictions, are not being either digitised or made accessible due to uncertainty about their copyright status. There is thus a need for guidance and training in the rules on copyright in the archives, libraries and museums. The National Library has already received funding from the Norwegian Archive, Library and Museum Authority for the development of such guidance materials.

At the same time it is essential that the ALM institutions be given permission to digitise and use digital copies also of materials protected under copyright rules to ensure effective use of new technologies to provide the users with easy and appropriate access to the materials in the collections. This must not, of course, in any way undermine the rights of the copyright holders.

The Working Group would mention the project LåtLån (“SoundLoan”) as an example of a solution for the dissemination of digitised materials under copyright. The project permit-

ted music by Norwegian artists to be transmitted to registered library borrowers, with royalties paid to the rights holders’ associations. The Deichman Library and Bergen Public Library were in charge of the project, which is now completed.

Digital access to the materials in the libraries is mainly regulated by licensing agreements for materials under copyright, and made available by the publisher. The new Copyright Act which came into force on July 1, 2005, gave extended rights to the archives, libraries and museums in respect of digital reproduction and the creation of access. Section 16 of the Act authorises the archives, libraries and museums to produce copies of works for particularly defined purposes. The scope for the use of the works in the collections is widened somewhat; authority is given for the production of copies in a format other than that of the original for particularly defined purposes (e.g. the digitisation of works in the institution’s own collection) and the creation of access for the users via terminals on the library’s own premises. The scope for such extended use will be set out

in new Regulations to the Act. In addition, a new Section 16a provides for an extended collective license, enabling the ALM institutions to enter into licensing agreements with extended effect for the digital production of copies and the creation of access to the materials extending beyond the use accorded directly in law. When the new regulations are in place, the need for digital extended collective license agreements can be considered. It is important that such agreements should be delimited from materials that have in different ways already been cleared.

The Working Group hopes that it will be possible to enter into favourable agreements to enable large scale digitisation, while at all times respecting the balance between the needs of the users and the rights of copyright holders.

The problems are also being considered by the Forum on copyright and the protection of privacy, and we have, therefore, not elaborated further on the issues involved. The Forum has been established by the National Library, supported by the Norwegian Archive, Library and Museum Authority.



# ORGANISATION, DISTRIBUTION OF TASKS AND CO-ORDINATION

To ensure the successful outcome of the national effort as sketched out in this report, it is necessary to prepare a model for the organisation and co-ordination of tasks in the ALM domain. This should be done in order to ensure unified thinking and to achieve an appropriate and economically sound integrated co-operative venture in respect of competence and equipment.

## 8.1 Digitisation Council

It is recommended that a Digitisation Council be appointed to ensure the commitment to the initiative of all parts of the domain. The composition of the Council should include representation from the archives, libraries and museums, at local,

regional and national levels.

The National Archival Services of Norway and the National Library should be represented on the Council, as should representatives from the university and university college sector, and the users. It will be the task of the Council to ensure the development and continuous maintenance of a comprehensive national strategy of digitisation and to work on solutions for its successful implementation. The Norwegian Archive, Library and Museum Authority should provide the secretariat for the Council.

In addition, a steering group should be appointed at a high, perhaps political, level to support the effort.

### Initiatives:

- A digitisation council should be appointed, with representatives from the archives, libraries and museums, at local, regional and national levels. The National Archival Services of Norway and the National Library should be represented on the Council, as well as the university and the university college sector and the users. It should be the task of the Council to develop and continuously sustain a comprehensive national strategy of digitisation, and to strive to find solutions on how it can best be implemented. The Norwegian Archive, Library and Museum Authority should provide the secretariat for the Council.

- A steering group to take charge of the initiative should be appointed at a high, perhaps political, level, with representatives from the Ministry of Culture and Church Affairs, the Ministry of Education and Research, and the Ministry of Government Administration and Reform.

## 8.2 The digitisation process

In order to speed up the digitisation process and increase the volume of digitisation, it is important to establish integrated solutions. It would serve no useful purpose if all the institutions were to acquire the equipment and the competence needed for the digitisation of the analogue materials in their care. Such investments could not be sufficiently large to allow for an efficient production process or provide an outcome of sufficient quality. However, there is a limit to how far the process should be centralised; for an effective process it would be of great importance to know the materials, be well informed about the environment they have been created in, the topics they are suited to provide information on, and to have

knowledge about the different user groups.

### 8.2.1 Regional centres of expertise

As a consequence, the Working Group considers that regional centres of expertise and responsibility should be set up. To have one for every county may result in too many of these centres. Their number should be considered in relation to the possible future reorganisation into regions, but again one should consider whether the number of regions would produce an appropriate number of centres of expertise. At the same time, it might be helpful if direct links could be established between the centres of expertise and the administrative and political apparatus in a particular region. The number of centres of expertise and their location should also be considered in relation to the interested organisations that are already in existence, which may themselves form the basis for the creation of centres of expertise. To this end, it would be appropriate to consider what interest organisations are already operating in the field, where the relevant analogue

materials are located and what kinds of technical installations, equipment and competence are needed.

As regards tasks, the centres of expertise should play a major part in co-operative work and the overall planning of digitisation and services in the region. This should be undertaken in close co-operation with the political, administrative and other relevant groupings of the region and its municipalities, and all procedures should comply with the national strategy for digitisation. All services should be developed in co-operation with the region's schools and industries and other major user groups. The centres of expertise should be able to provide guidance to any institution wishing to carry out digitisation of its own materials, and they should work to strengthen the overall related competence in the region.

The centres of expertise should also provide services in respect of the digitisation of materials on behalf of institutions in their regions although it is not certain that all digitisation activity should be carried out by a single organisation. It might

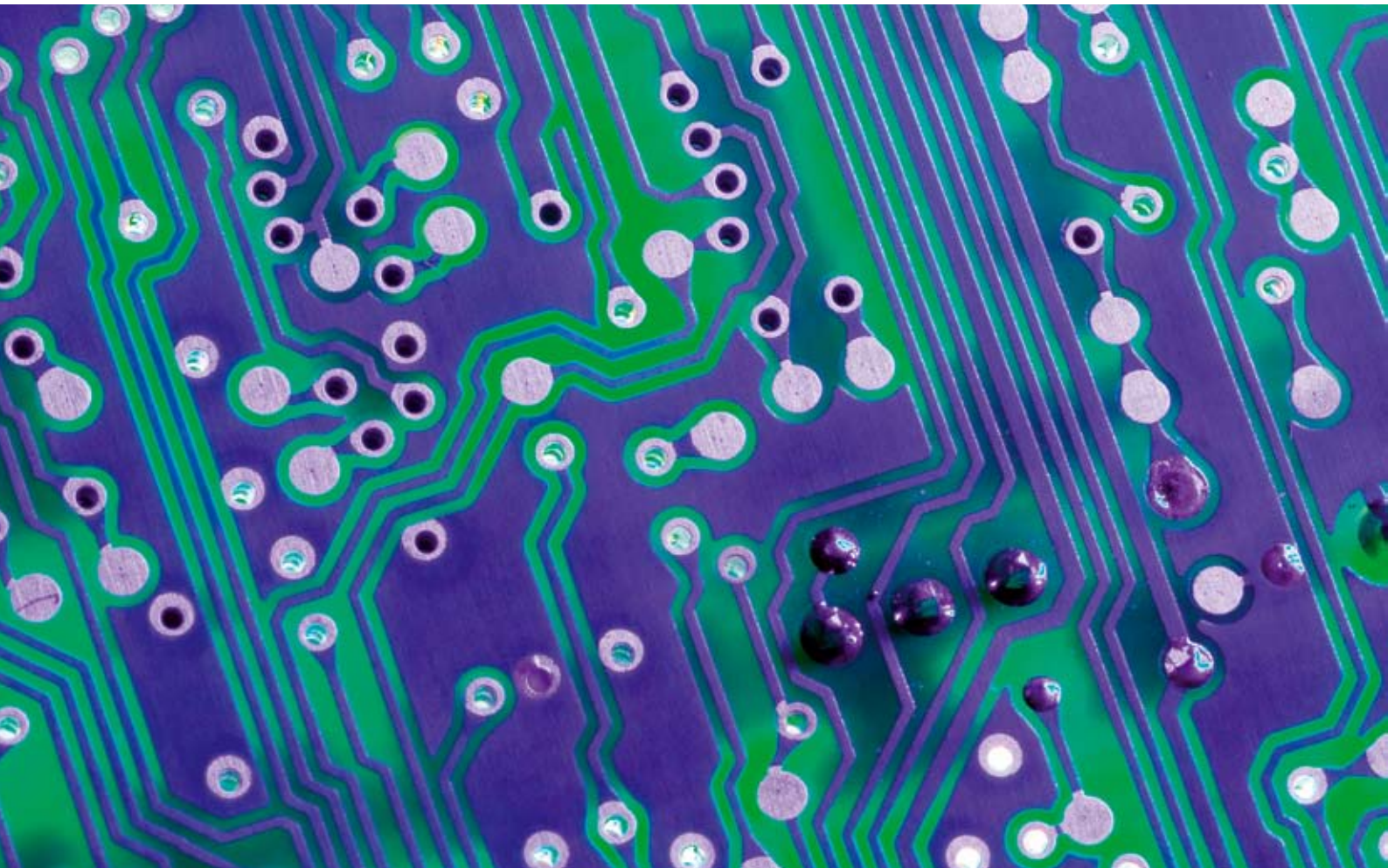
sometimes be more appropriate if different interested organisations in a region were to specialise in the digitisation of different types of original materials. Other options could be that solutions are developed by several regions in cooperation, or that different regions specialise in particular types of materials, or that services are bought in

from outside the region, including purchases from commercial institutions. Whatever solutions are chosen, it is important that the centres of expertise become the central, co-ordinating link for all the activities of a region.

The regional centres of expertise should also constitute a network among themselves, for example, with a view to the

exchange of inter-regional services.

To equip the centres of expertise for these tasks, it is important that they are provided with sufficient funding to develop the necessary levels of competence, that they are able to employ adequate personnel, and make substantial investments in equipment where nec-



essary. It would be reasonable for such investments to be carried out jointly by central government and the regions. Institutions which are administering original materials may choose to digitise (parts of) their own materials themselves. However, if sufficient investment is made to set up the centres of expertise and the investment in equipment is concentrated in fewer institutions, costs would generally be so much lower and the quality of the work so superior that it would no longer be sensible for the smaller institutions to carry out this work. It is the view of the Working Group that such a distribution of tasks should be chosen as not only the most effective and economical solution, but also the one that best meets the specialist subject requirements. Models for the distribution of tasks and responsibility should be created, and further clarification is needed in respect of the pricing of services between the administrator of the original materials and the centre of expertise. Such work should be carried out in co-operation with any established interested organisations, which themselves may

serve as a basis for the creation of a centre of expertise. All procedures must take account of the existing regulations for tendering and offers of facilities covering the public sector, commercial suppliers and international co-operation.

#### **Initiatives:**

- As a part of a national effort of digitisation in the archives, libraries and museums sector, regional centres of expertise should be set up to encourage digital cohesion. These should be in part state financed.

In respect of the creation of catalogues and other record keeping and description of the materials, it is especially important to have knowledge of the materials and the context of their creation. It is, therefore, often more appropriate that work on catalogues and records be undertaken in the institution administering the materials. Nevertheless, it remains essential also here that the centres of expertise co-ordinate planning and the order of priority, that integrated databases and central solutions for the operation and the long-term preservation of

the materials be set up, and that established standards adopted at the national level be adhered to.

To ensure the harmonised use of standards and formats, the responsibility for the development of guidelines, the maintenance of the technical frameworks, etc. should be placed at the national level. The Norwegian Archive, Library and Museum Authority, in co-operation with the institutions responsible for national digital collections and the long-term preservation of materials, should have responsibility for the various initiatives. At the regional level it should be the duty of the centres of expertise to ensure that their work conforms to the regulatory framework.

#### **8.2.2 Digitisation at the national level**

The volume of the material to be digitised in institutions nationally is so large that the most appropriate solution would be for the individual institution to be equipped to process its own materials. The institutions would require sufficient funding to ensure that digitisation progresses at a reasonable pace. Investment

is needed in personnel, equipment and competence. At the same time consideration should be given also in this area to the issue of when it would be more appropriate to buy in the services than to carry out the work oneself. Services could be purchased both from commercial suppliers and from other ALM institutions both at home and abroad.

#### Initiatives:

- Institutions at the national level should receive funding in order that work to digitise their own materials will progress at a reasonable pace. This will be the task of the proprietors of the institutions.

For certain types of special materials it may be appropriate to work out alternative forms of task distribution. This applies to materials requiring very high levels of competence or special equipment for their processing, but which are relatively low in number, so that it would be proper to concentrate their handling in a single body or a few interested organisations nationwide. In particular, the digitisation of sound and moving

images, and perhaps also microfilm scanning, might properly be carried out in this manner.

### 8.3 National integrated solutions for preservation and the creation of access

The establishment of digital repositories for long-term preservation should be considered a national responsibility. Section 6.3.2 set out various options for the creation of such integrated digital repositories, with associated national websites providing user access. The solutions chosen will have consequences for the distribution of duties and responsibilities in respect of the repositories.

The National Archival Services of Norway, through The Digital Archive, would be the natural institution for taking responsibility for archive material if the repositories are arranged according to different material types.. The National Library, on the basis of its work on the digitisation of sound and moving images and its recently launched initiative to digitise its entire collections, would be the natural choice for taking charge of typical library materials. Similarly, the Software Develop-

ment for Museums (Museenes datatjeneste) which is in charge of the Primus software package, would be the natural administrator of digitised museum materials. The latter should, however, be considered in relation to the creation of an organisation which will operate the Museum Project's databases for the collections of university museums.

If instead the repositories are to be arranged on the basis of national production databases, it would be natural to link responsibility for the digital repositories and long-term preservation to the interested organisations operating them.

Consideration should also be given to the types of competence and infrastructure that the relevant interested organisations already possess in relation to long-term preservation. In this regard, the National Library and the National Archival Services of Norway are particularly relevant.

In order that the websites linked to the collections clearly appear as integrated solutions, they should be kept separately from the operating organisations' own websites and the

dissemination of their own materials.

#### 8.4 The Norwegian Digital Library, the Norwegian Archive, Library and Museum Authority and digitisation

It is reasonable that the Norwegian Archive, Library and Museum Authority should have a central role. This will encompass the co-ordination of the different initiatives for the further development and continuous maintenance of an overall national strategy for the digitisation of materials in the ALM domain. Many of the initiatives discussed in this report place the Norwegian Archive, Library and Museum Authority in such a role.

One of the most important arguments put forward in the ABM Report for the establishment of the Norwegian Archive, Library and Museum Authority was the need for an integrated approach to the problems and issues with regard to the digitisation of materials in the archives, libraries and museums. Until now, parts of the work carried out by the Norwegian Archive, Library and Museum Authority in con-

nection with the new challenges posed by IC technology and digitised materials have been co-ordinated in the Norwegian Digital Library programme, which also initiated the setting up of this Working Group. The Working Group's mandate called for the creation of a report setting out the challenges arising across the combined archives, libraries and museums sector, and not the library sector in particular. If the programme Norwegian Digital Library were to continue as an umbrella project for the ALM domain as a whole, it would be most natural that policy decisions should be developed under its aegis. However, from the autumn of 2006 a reorganisation will take place, with the programme continuing to cover the library sector only, and a new digital programme for the ALM domain as a whole will be created.

It is important that the Norwegian Archive, Library and Museum Authority should set aside sufficient funding to carry out the necessary work in connection with the digital challenges. It is also important that it make its investments

and strategy elements known to those interested. Such investment must be carried out in a comprehensive and cross-sectoral perspective. Where particular issues arise relating to the individual sub-sectors, it may well be appropriate that these are clarified separately, but always with a view to their inclusion in the national strategy plan. For the library sector this would mean working in association with the Norwegian Digital Library.

#### Initiatives:

- The Norwegian Archive, Library and Museum Authority should give priority to work on digitisation and digital materials and should make its investments and strategies known to those interested. The investments should apply to the archives, libraries and museums sector as an entity.

# ECONOMIC REQUIREMENTS

In Chapter 4, which discusses digitisation requirements, we pointed out the discrepancy that exists between the currently stated political aims at the national level, the needs of society and the individual, and the ambitions of the ALM domain in respect of digitisation on the one hand, and the actual initiatives and investment of resources on the other. It was proposed that an integrated and co-ordinated national effort be initiated in order to create access to the sources of knowledge and culture that are administered by the archives, libraries and museums.

As demonstrated by the report, the effort will require a series of initiatives to build

up the infrastructure, e.g. equipment, tools and digital repositories, and to develop appropriate user services. For the successful outcome of such an effort, new funding must be made available to the domain. It is important that the established structures and channels are used for the purposes of such a mobilization. The Working Group considers that the task can best be solved by using two main approaches:

1. The institutions should received a boost in the form of increased funding allocation to their ordinary budgets,
2. Central government should take responsibility for a special effort for five to 10 years, for an integrated national

infrastructure to be established and for the digital content to be raised at all levels (local, regional and national).

## 9.1 Increased funding allocation for general budgets

It is important that the institutions are enabled to function efficiently in a digital age. Attitudes, competence, equipment and work processes must be adapted in order to meet the challenges, and benefit from the opportunities presented by IC technology. These should be integrated into daily work procedures so that the tasks associated with digitisation and the dissemination of digital materials become a natural part of the operations of the institution. To achieve this, it is necessary

to strengthen the institutions by increasing the funding allocations to their ordinary budgets. This will primarily be the task of the proprietors of the institutions, or in other words the municipalities, the counties, central government and others, with the level of funding and other requirements to be negotiated between the proprietor and the institution.

### 9.2 An all-out effort

In addition to the strengthening of institutions by means of increased funding, it will be necessary to carry through an all-out national effort financed through the national budget. The effort will involve the development and mobilization of integrated infrastructure and services and a programme of production of digital content. This effort, which will have to continue for five to 10 years, will create digital access to a much larger and more representative part of the ALM domain's originally analogue collections. Access will be provided to a wider part of the general public than is currently the case. Subsequently, there will be a continuous need for the

operation of separate services integrated into a national infrastructure, e.g. production tools, solutions for the creation of access to materials, and national digital repositories.

Several parts of this report refer to the establishment of a digitisation council, the need to establish national specialist centres to take charge of the development and maintenance of standards and directives, the upkeep of the national strategy for digitisation in the entire domain, and so on. The Working Group proposes that NOK 5 million be set aside for this in the national budget. This requirement is likely to be permanent.

In Section 8.2.1, we recommend the creation of regional centres of expertise to be in charge of guidance and co-ordination, and that there should be co-operation within each region in respect of investment in equipment and tools, plans for digitisation and services offered to the users. The Working Group recommends that such work should be financed jointly by the regions (e.g. the proprietors of the institution, etc.) and central government.

One solution may be that when the region's institutions and other relevant organisations have agreed on a plan for the distribution of skills and equipment, along with an overall plan for digitisation and user services, 50% of the cost should be financed by the region and a corresponding 50% by central government. It is the recommendation of the Working Group that for this purpose NOK 3–4 million be set aside annually in the national budget for every region.

Section 6.3 of the report sets out proposals for the various elements of a national infrastructure, both for the production of digital materials, the creation of access to the materials through integrated websites, and for the long-term preservation of digitised materials in digital repositories. The Working Group recommends that over the next five years, NOK 10–15 million are set aside annually for the development of these. The cost of operating integrated production solutions and websites will be reduced considerably once the creation and development phases have been completed. The costs

associated with digital repositories for the long term preservation of the materials, on the other hand, will grow as their contents increase. The National Library currently calculates the cost to be NOK 50,000 per terabyte per year at today's prices. It is impossible to estimate what either the volumes of data or the price for storage will be in

the future, but since one must count on very considerable volumes of data, it is likely that over time large sums need to be set aside for this purpose in the national budget.

It is also likely that costs will be incurred in the future for possible purchases to release materials, with the rights holders to be compensated

under the terms of framework agreements. It is not possible to calculate such costs at the moment.

It will be necessary to work extensively on the digitisation of the contents of the domain in order to create digital access to a much larger and more representative proportion of the original analogue collections.



<b>Aktivity/initiative</b>	<b>Annual cost</b>
Regional centres of expertise, approx. 8 regions	NOK 20–30 million
National specialist centres	NOK 5 million
National infrastructure, including digital repositories	NOK 10–15 million
Programme for digital content	NOK 100–120 million
Total	NOK 135–170 million

The Working Group proposes that this be approached in the form of a programme to allocate funding on the basis of announcements and applications. However, the programme should also be able to allocate funding directly – without prior application – to encourage a unified effort and the efficient mass production of certain types of materials. A set of criteria should form the basis of funding allocations from the programme in order to ensure a broad and unified selection of the materials, co-operation and the effective use of resources, and to fulfil certain user requirements. Several parts of this report refer to such criteria. The Working Group recommends that NOK 100-200

million be set aside annually over five to 10 years for such a programme. The funds should be granted to institutions in the ALM domain at the local, regional and national levels.

The table above sets out the annual cost requirements associated with a national all-out effort of digitisation, financed through the national budget. The grants should be made in addition to the current funding allocations for the digitisation of materials in the cultural sector.

### 9.3 Administration of the funding

It would be appropriate for funding to be allocated to the domain through the budget of the Norwegian Archive, Library and Museum Authority. The

Norwegian Archive, Library and Museum Authority would administer the funds, although the decisions related to the allocation of the funding would be taken by the Digitisation Council, as described in Section 8.1. Funding may be allocated from the national budget directly to the responsible institution as soon as a more permanent infrastructure is in place for, the long-term preservation of materials in digital repositories or the operation of integrated solutions for the production process, etc.

# SIGNIFICANT INTEREST ORGANISATIONS IN NORWAY

The mandate requires the Working Group to map out the “larger relevant organisations” as a part of its work. When planning a national effort to convert the collections of the ALM domain to a digital format, it is important to involve the interest organisations already in existence in the field. The Working Group considers the following to be of special importance:

## 10.1 The National Archival Services of Norway with the Digital Archive

The National Archival Services of Norway, which consists of the National Archive and eight Regional State Archives are engaged in various forms of digitisation. The National

Archive carries out large scale scanning of requested archival materials (above all church registers). “Direct digitisation” (scanning of paper based originals) will start in 2007. The Digital Archive has two “recording units” (six full-time equivalents) working on the digital transcription (copying) of selected national series of archival materials. Several of the Regional State Archives are working on the transcription of materials in their charge, for which requests have been made. In co-operation with the genealogy association DIS-Norge, the National Archival Services of Norway also carry out systematic transcription of church register materials. A digital repository for the long term preservation

of digitised and original digital archival materials is currently being developed by the National Archive. The Digital Archive is the website for the National Archival Services of Norway, offering access to Norwegian archival materials in digital form, and it contains the largest collection by far of such materials on the Internet. The main emphasis is on personal data. Negotiations are under way with the Federation of local and private archives (Landslaget for lokal- og privatarkiv) on working together with a view to widen the Digital Archive to become an integrated national website to offer such access. The National Archival Services of Norway possess high-level competence in all these types of

digitisation, as well as of the catalogue system Asta and its associated standards. It is therefore a particularly important partner with regard to a national strategy of digitisation.

### 10.2 The Asta Foundation

The Asta Foundation develops and sells the software programme Asta which today is used by the majority of archival institutions and many other institutions holding archives, for the cataloguing of such materials. In this way, the software programme serves as a *de facto* standard in the description of archival materials. Asta is working on the creation of an integrated, central production database for archival catalogues. Negotiations are under way between Asta and Software Development for Museums for the establishment of a single joint development and operating body. The foundation is operated jointly by The Director General of the National Archival Services of Norway and the Federation of local and private archives (Landslaget for lokal- og privatarkiv).

### 10.3 The Sogn og Fjordane County Archives

The Sogn og Fjordane County Archives have taken a lead in the online dissemination of archival materials and are currently heading the project *Sogn og Fjordane as a test region for online cultural dissemination*. The main aim of the project is to develop an overall strategy for the regional and local online dissemination of culture and knowledge. The county has established a shared technological infrastructure for the archives, libraries and museums. The county municipality is in charge of technical operations and the County Archives is responsible for specialist subject issues. There is a server for the county library, shared access to the software programme Primus for the county's museums, and integrated solutions for photographs, sound and moving images. The solution provides sound and reasonable services to all the institutions and rational operations, and it simplifies the creation of new services such as shared searches. The infrastructure also provides modified search capabilities to the municipalities and various institutions.

### 10.4 Norwegian Historical Data Centre

The Norwegian Historical Data Centre (RHD) is a national institution at Tromsø University, whose aim it is to digitise and process historical sources with a view to making them accessible for research purposes. As a result of its work, a number of source series originating in the ALM domain have been made accessible and published on the Internet. In particular, the Recording centre has created access to nationwide historic censuses for purposes of statistical research in accordance with international standards for personal data. Through participation in The North Atlantic Population Project, RHD has integrated available data on the Norwegian population in one of the world's largest historical databases. RHD has also modified church registers, matrices and historical texts such as the works of Eilert Sundt. The sets of data are also used by researchers of social history, demography, medical history and names, as well as genealogists and school students.

### 10.5 Software Development for Museums

Software Development for Museums (MDS) develops software programmes and services for the work carried out by the museums on the collection, preservation, and dissemination of knowledge about culture. MDS is responsible for the software programmes Primus and Regimus, used by the museums for cataloguing purposes. (Regimus is being phased out, with Primus as its successor.) MDS has been created through an agreement between the Norwegian Museum Authority (now the Norwegian Archive, Library and Museum Authority) and the Norwegian Museum of Cultural History (Norsk Folke-museum). Negotiations are under way between the MDS and the Asta Foundation on the creation of a shared development and operating body.

### 10.6 Digital Documentation Unit

The Digital Documentation Unit of the Faculty of Arts at Oslo University (EDD) was established for the administration and further development of the large digital resources being built up through the National

Documentation Project (1991-1997). The scientific focus of the EDD is serving as a basis for the method and organisation of the data for ICT-based research in the humanities. The EDD is working jointly on a continuing basis with several specialist subject groups in the Faculty of Arts in connection with work on digitisation, and is also working with other institutions at home and abroad. The EDD has designed and implemented the digital infrastructure for Norsk Ordbok 2014 (Norwegian Dictionary 2014) and is working in close association with the project. The EDD has also been behind the completion in practice of the Museum Project (1998-2006), a large digitisation and database project for all the Norwegian university museums, whose aim is to prepare the ground for the creation of research databases.

### 10.7 Systems providers for the library sector

The library sector is more of a compound structure than the archives and the museums in terms of catalogue systems, since five providers are in competition in the sector. In the

special libraries, BIBSYS is used by the universities, the university colleges, and the National Library, while Mikromarc is used by the smaller academic, specialist and research libraries. The public and school libraries are using Bibliofil, Aleph, Mikromarc or Tidemann. All the systems supply bibliographic data to the various common link-based catalogues.

### 10.8 The National Library

The National Library's work on digitisation has to date generally focused on different aspects of preservation. Materials typical of the library sector have not generally received priority. The emphasis has been on those parts of the collections that, due to their poor condition, have been threatened by destruction, or in cases where such a threat has come from a lack of recording equipment. This makes the National Library an important partner in respect of the digitisation of sound and moving images. The National Library has, however, recently launched an initiative aimed at the digitisation of the entire collection. By virtue of its role in the library sector and its experience with

digitisation as well as large numbers of digital objects, and long-term preservation, the National Library is a very important participant in relation to a national strategy of digitisation.

### **10.9 Participants at the local and regional levels**

All the bodies described above are, by virtue of their national

role or established functions, important participants in the creation and the successful outcome of a national strategy for the digitisation of materials in the ALM domain. However, it is also important to establish a strategy to stimulate and support regional and local institutions and interest organisations. These have a great deal

to contribute in terms of their content, their competence in relation to the materials they administer, and knowledge of the users for whom the facilities are being developed. In order for the national strategy to be successful, a concerted effort involving participants at the national, regional and local levels is required.





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