

MINISTRY OF CULTURE OF THE REPUBLIC OF CROATIA

NATIONAL PROGRAMME OF DIGITISATION OF  
ARCHIVAL, LIBRARY AND MUSEUM HOLDINGS

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1. Title of the document:

Proposal of the National Programme of Digitisation of Archival, Library and Museum Holdings

2. Purpose of the document

The purpose of the document is to identify the goals and content of the National Programme of Holding Digitisation in cultural institutions, to establish the preconditions for the introduction and implementation of the programme, and to evaluate the possibilities and determine specific programme activities and their desired effects.

The National Programme of Digitisation of Archival, Library and Museum Holdings seeks to promote and support a systematic and standardised approach to the digitisation of holdings in cultural institutions, the design and provision of cultural contents and services through digital copies, and the application of information technology in the protection, processing and use of the holdings. The programme is focused on the development of long-term digitisation policies and the enhancement of institutional, technological, professional and organisational capacity and infrastructure considered to be necessary for programme implementation and for the management of specific digitisation projects.

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## Summary

The National Programme of Digitisation of Archival, Library and Museum Holdings defines the basis for the development of programmes and projects for the digitisation of archival, library and museum holdings as part of the national cultural heritage, aiming to create and promote information society services in this field.

The fundamental and immediate task is the creation of a normative and infrastructural framework that will facilitate and promote broad accessibility, usage and exchange of cultural contents, provide access and presentation of this part of cultural heritage, and lead to the creation of digital contents and services based on modern information technology, interoperability, long-term exploitability and sustainability, and integration of European and national policies and strategies in the development of information society.

The long-term strategic goal of the Programme also includes the strengthening of the resources, and of the institutional and professional capacities of the archives, libraries and museums in planning, developing and maintaining high quality digital contents and services.

The proposed specific activities are the following:

1. Initiate the cooperative National Project of Digitisation of Archival, Library and Museum Holdings *Croatian Cultural Heritage*.

2. Initiate a project and set up a body for the establishment of specifications for digital collection models, and digitisation standards and instructions, within the scope of the National Digitisation Project or in cooperation with it.
3. Organise a reference centre or service for the support and monitoring of digitisation projects.
4. Produce a portal with reference and support contents for holding digitisation, project data and access to digitisation project products.
5. Organise cooperative digital archives meeting appropriate hardware, software and staffing standards.

## **1. About the Programme**

### **1.1 Introduction**

Having followed the process of digitisation of the cultural heritage worldwide, and particularly in Europe, the Ministry of Culture of the Republic of Croatia is familiar with all the initiatives accepted as the basic frame of reference by the member countries of the European Union. In accordance with this, and having considered the activities within its scope of responsibility, the Ministry has recognised the process of digitisation of part of the cultural heritage as an important goal of the national cultural policy and cultural development.

Among other things, the Ministry seeks professionally determined standards to serve as standards applied by the Ministry's technical councils when suggesting to the Minister the adoption of proposals submitted by institutions or individuals in response to the public call for requirements in culture, for which the financial support of the Ministry is expected.

Perceiving digitisation as a process of cultural heritage protection and as a way of increasing the accessibility of valuable material at the national and international level, and accepting the initiative of the Croatian Library Council and the National and University Library in Zagreb, the Ministry of Culture invited the Croatian Museum Council and the Croatian Archive Council to appoint their representatives to the Working Group for the digitisation of cultural heritage. In this way the programme of digitisation of part of the cultural heritage was determined as one of the strategic goals of the Ministry of Culture of the Republic of Croatia.

Figures also reflect the importance of digitisation in the Republic of Croatia. Material from different sources needs to be protected and made accessible (from more than 1400 libraries, more than 200 museums, 14 archives, but also from many private collections from all parts of the Republic of Croatia). Moreover, many documents are

found in collections kept in countries with which Croatia had state relations in the distant or recent past (Austria, Italy, Hungary and the successor states of the former Yugoslavia).

The Working Group was established, and its work started, following the decision of the Minister of Culture, Božo Biškupić, M.A., on the appointment of the members of the Working Group for the digitisation of archival, library and museum holdings of 29 June 2005.

The thirteen appointed representatives from archival, library and museum institutions presented the text of the National Programme proposal to the Ministry on 5 September 2006, and obtained the support of the Minister. Specific initial steps in the implementation of the Programme in the area of education, the determination of standards in the production of digital collections, and the presentation of the Programme to the professional public were determined immediately and are already being implemented.

## **1.2 Programme aim and goals**

Rather than as a comprehensive digitisation project the National Programme of Digitisation of Archival, Library and Museum Holdings is being envisaged as a set of activities focused on the achievement of the following goals:

1. Digital collections produced by the digitisation of archival, library and museum holdings must be of good quality and suitable for the protection of the material and for improving accessibility to it.
2. Digitisation will be carried out through appropriately planned and managed projects in accordance with well-known principles, priorities and standards.

3. Digital collections will be accessible to users in keeping with valid rules of use.
4. In the long run, digitisation of material as a whole is intended to produce identifiable and relevant contents and service systems in an electronic environment.
5. Digital collections are to be kept in an organised management system offering sufficient guarantees for their lasting preservation and accessibility.

### 1.3 Strategic and legal framework for the adoption of the National Programme of Digitisation of Archival, Library and Museum Holdings

The development of the information society and information services, particularly in the economy and public administration, has recently been the subject of many legislative, normative and strategic initiatives and documents. They obviously also create a new environment for cultural activities irrespectively of the degree in which such documents also relate to such activities.

With reference to digitisation, the **Information and communication strategy - Croatia in the 21<sup>st</sup> century** (*Official Gazette*, 109, 2002) envisages that “*cultural contents, which make up an important part of the national identity, will be [...] gradually digitised and made available and accessible, through digital libraries, to citizens, pupils and students, cultural workers, artists and scientists. In this way many interested persons will gain access to the cultural wealth from distant locations. The distribution and promotion of Croatian cultural contents abroad will also be facilitated.*”

Furthermore, the document specifies that “*projects for the digitisation of the most important cultural and national wealth should be initiated, and digital libraries established on the basis of digitised material. Digitisation should be entrusted to professional firms*” and “*due attention should be paid to material selection, the selection and application of standards, copyright protection, and the possibility potential earnings for the project of digitisation of the cultural and national wealth.*”

The **Cultural Development Strategy**, formulated within the framework of the project “Croatia in the 21<sup>st</sup> Century”,<sup>1</sup> also includes, in addition to general cultural policy goals, the “*development of cultural communication and creativity through new information technologies.*” One of the goals in archival, museum and particularly

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<sup>1</sup> [http://www.hrvatska21.nhr/kultura%2011 2 2003.pdf](http://www.hrvatska21.nhr/kultura%2011%202003.pdf)

library activities highlighted in the document includes the digitisation of holdings and the need for greater cooperation among different cultural institutions. The document also proposes the adoption of the National Digitisation Plan.

The **2007 e-Croatia Programme**,<sup>2</sup> which relies on the concepts and experiences of the European Union in its implementation of the action plan **e-Europe 2005**<sup>3</sup>, also envisages the development of electronic contents and services in the public service sector, culture included.

Some of the laws which provide the legal framework for the establishment of the information society and public information services, or which are relevant for the informatisation of cultural activities and services are listed below:

Law on Archival Holdings and Archives (*Official Gazette*, 195, 1997)

Law on Libraries (*Official Gazette*, 195, 1997)

Law on Museums (*Official Gazette*, 142, 1998)

Law on the Electronic Signature (*Official Gazette*, 10, 2002)

Law on Electronic Commerce (*Official Gazette*, 173, 2003)

Law on Electronic Documents (*Official Gazette*, 150, 22005)

Law on Copyright and Related Rights (*Official Gazette*, 167, 2003)

Law on the Protection of Personal Data (*Official Gazette*, 103, 2003)

Law on the Right of Access to Information (*Official Gazette*, 172, 2003)

The National Programme of Digitisation of Archival, Library and Museum Holdings must take into account the principles, policies and experiences in the digitisation of cultural heritage in the European Union and develop the capacity of Croatian institutions to participate effectively in the programmes and projects of cultural heritage digitisation in the European Union.

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<sup>2</sup> <http://www.e-hrvatska.hr/ehrvatska>

<sup>3</sup> [http://www.eu.int/information\\_society/eeurope/2005/all\\_about/action\\_plan/index\\_en.htm](http://www.eu.int/information_society/eeurope/2005/all_about/action_plan/index_en.htm)

In accordance with the Europe initiative “Information Society for All”, the European Commission and the member countries have established trans-European mechanisms for digitisation coordinating policies and programmes in the field of cultural contents and applications. In this connection the **Lund Principles** (2001)<sup>4</sup> and the **Lund Action Plan** (2001)<sup>5</sup> define the fundamental goals which can be summarised in terms of the following four basic recommendations:

- development of mechanisms for the promotion of good practices focused on harmonising and optimising initiatives on the European level;
- dissemination of European scientific and cultural contents;
- development of relevant criteria for digitisation procedures;
- stimulation of content quality and promotion of its accessibility to European citizens.

These principles form the basis of the **Charter of Parma** (2003)<sup>6</sup> which is part of the Lund Action Plan operated with the support of the European network Minerva. Within the framework of the Charter of Parma the group of representatives of EU member countries recognised as the primary task the achievement of the following goals:

1. intelligent use of new technologies;
2. accessibility;
3. quality;
4. protection of intellectual property and privacy;
5. interoperability and standardisation ;
6. inventories and multilinguality;

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<sup>4</sup> [ftp://ftp.cordis.lu/pub/ist/docs/digicult/lund\\_principles-en.pdf](ftp://ftp.cordis.lu/pub/ist/docs/digicult/lund_principles-en.pdf)

<sup>5</sup> [ftp://ftp.cordis.lu/pub/ist/docs/digicult/lund\\_action\\_plan-en.pdf](ftp://ftp.cordis.lu/pub/ist/docs/digicult/lund_action_plan-en.pdf)

<sup>6</sup> <http://www.minerveeurope.org/structure/nrg/documents/charterparma039111final-hr.htm>

7. benchmarking;
8. cooperation on the national, European and global level;
9. growth of the number of participants;
10. common future leaders in the development of a knowledge society.

The **Minerva Network**<sup>7</sup> focuses on the establishment of a common European technological and conceptual platform, the drafting of digitisation recommendations and guidelines, metadata production, and the provision of long-term accessibility and digital contents protection.

In March 2005 the European Parliament and the European Council adopted the multi-annual **eContentplus Programme**<sup>8</sup> aimed at increasing the accessibility and exploitability of digital contents in Europe. The Programme is focused on areas in which a slower rate of growth was observed, i.e., geographical contents, educational contents, and cultural and scientific contents. In particular the Programme stimulates the European coordination of collection development and protection in libraries, museums and archives in order to insure the accessibility of cultural, education and scientific contents for future use.

#### **1.4 Roles and responsibilities**

A greater number of institutions and other implementing agencies will take part in the National Programme of Digitisation of Archival, Library and Museum Holdings. The roles and responsibilities of the individual participants will be determined by a contract or another document attesting to their participation in the project.

**The Programme was initiated and formally established by the Ministry of Culture of the Republic of Croatia.** The founder of the Programme considers and

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<sup>7</sup> <http://www.minervaeurope.org/home.htm>

<sup>8</sup> <http://europa.eu.int/information-society/activities/econtentplus/indexen.htm>

determines the rationale, appropriateness and implementability of its Programme and the related proposed activities, establishes the necessary organisational infrastructure, approves the project plan and supervises project implementation.

**The Programme leaders are the Ministry of Culture, the National and University Library, the Croatian State Archives and the Museum Documentation Centre** as the country's central library, archival and museum institutions.

Bearing in mind other activities and documents related to the implementation of the eCroatia 2007 Programme, which determines the agencies implementing specific activities of particular significance for the Programme (especially the development of the broadband multi-service network), the part of the Programme related to the provision of broadband access for the central institutions (project leaders) will also include, in addition to with the Ministry of Culture and the Central State Office for eCroatia, and the Ministry of the Sea, Tourism, Transport and Development as project leaders

The role and the tasks of the Programme founders and leaders are described in detail in chapters 5.4, *Operating activity plan*, and 5.5, *Resources*.

The Institutions included in the Programme prepare, propose and implement their own material digitisation projects.

The Project Office is responsible for assigning the areas of responsibility and tasks of the Office Head and of the working group for the drafting of standards and recommendations, of the task groups for specific standards and recommendations, for the determination of support to digitisation projects in specific institutions, for technical infrastructure, for the maintenance of digital collection catalogues or records, for the maintenance of the networking centre, for services, etc.

## **1.5 About this document**

This document attempts to provide a framework for the planning and organisation of national, institutional and cooperative digital collections projects, and the respective cultural services and facilities based on them, for resource planning and development, and for the design and adoption of strategies for the long-term preservation of digital contents and services. It is intended for cultural institutions wishing to use digitisation technology in order to protect or improve the accessibility of their collections, and for policy- and decision-making institutions financing such projects in order to achieve the best investment effectiveness.

This document is not meant to answer all technical, professional and other questions facing digitisation projects, nor to offer a comprehensive and complex digitisation manual. The document identifies and describes such issue, and proposes specific activities. Some of them will be covered in the annex to this document to the extent appropriate considering its basic purpose and scope. Specific digitisation aspects, particularly technical ones, require a more detailed and focused approach.

Most questions related to the digitisation of archival, library or museum holdings involve basically the same or similar characteristics regardless of the type of material. This is why this document does not cover specific types of material or specific institutions separately. Such an approach is also justified by the improvement of user services through the design of common contents or services, system interoperability and efficient use of resources.

In the view of the working group, the proposal of the National Digitisation Programme ought to consider the following key issues and provide the respective proposals for dealing with them:

- how to stimulate the production of high quality digital contents

- how to promote the development and production of high quality based on digitised contents;
- how to provide long-term protection and use of digitised and other digital contents;
- how to improve resources, institutional capacities, and exchange of experience and knowledge.

## **2. Reasons for the digitisation of archival, library and museum holdings**

Archival, library and museum holdings are digitised in order to protect the original, increase accessibility to and use of material, create new services for the users or to complete the existing holding.

Each of these goals entails specific requirements which must be borne in mind when planning and implementing digitisation projects. Digitisation projects must take due note of these requirements, evaluate their relative importance for a specific project, and clearly define how, to which extent and with what means their ultimate product will meet the specific requirements.

### **2.1 Digitisation for protection**

Digitisation for the protection of the original has two basic forms. Originals may be replaced by digital copies and this protected from possible damage during use, transport or other activities. Moreover, digital copies may also be used as safety copies which can at least in part make up for the loss if the original is substantially damaged or lost. Of course, microfilm is mainly used for that purpose, although digitisation is also being used increasingly. The trend is supported by the development of technology which continuously offers improved solutions for more permanent storage and protection of digital contents, as well as by the lower cost of digitisation and digital content preservation.

If digitisation for protection is to achieve its purpose, the produced digital object must be a good and high quality copy of the original, it must replace the original to an adequate extent, and must be appropriately accessible for use. If the digital copies do not represent the original well, if they are not accessible and if their use is more difficult or deficient, the goals of digitisation for protection will not be achieved.

Institutions digitising their holdings for the purpose of protection must know and clearly identify the characteristics of digital copies and the systems in which such copies are found and ensure the presence, identifiability and preservation of these characteristics.

As a rule individual digital copies are part of digital collections and belong to an information system providing for the management and the accessibility of the collection. This is why the relevant required characteristics of the digital objects, collections and information systems to which they belong must be clearly recognised. These characteristics are listed and described (including the evaluation of relevance and importance with respect to specific digitisation goals) in chapter 4, *Properties of digital objects and collections*. Measures and activities intended to ensure support for the achievement of these desired properties are also described there.

## **2.2 Digitisation for improving accessibility**

The second frequent reason for the digitisation of material is the improvement of its accessibility. When digitised material published on the web, it becomes remotely accessible regardless of the location of the user and at the time which best suits him.

Institutions offering their holdings in this way can count on the growth of their user community, on the increasing visibility of their material and on the attraction of new categories of users who, thus far, may have been unaware of the institution's services. Institutions failing to use this form of approaching users can expect to lose their identifiability and public presence even among (potential) users. They will become relatively less significant as providers of information and cultural contents.

A well-defined system for accessing digital contents eliminates or largely eliminates the need for the staff of the institution to act as a mediator between the users and the

material used. It also simplifies the use of the material and reduces the load on the institution.

The success of digitisation focused on improving accessibility largely depends on the degree of processing, the organisation and description of digital collections, and properties and potentials of the information system providing for accessibility. This aspect of digitisation most clearly reflects the interdependence between the digitisation procedure proper, the digital collection processing, and the information systems and applications used for processing, accessing and retrieving digital contents.

### **2.3 Digitisation for the provision of new services**

Digitisation and others ways of producing digital contents can offer not only new contents but also new services, which would otherwise be impossible or hardly feasible outside the electronic environment.

Some of these services are focused on traditional users, e.g., pooled information services, systems supporting distributed search or access to material of different holders during the same user session, design and maintenance of thematic portals, creation of online exhibitions and other contents derived from the material or associated with it.

Certain new facilities based on digitised material can also be aimed at the so-called professional public, i.e., other institutions, organisations and individuals from the same or similar fields of interest. Digitised contents and associated metadata produced by one institution can also be useful to other institutions for the design and completion of their own material and for the processing of their contents. Some projects and services, e.g., ‘virtual collections’, are based as a whole on outsourced original contents acquired by digitising material of other holders.

Among the results of a systematic involvement in digitisation will also be the development of infrastructure, resources, knowledge and experience, which may also be used to introduce specialised services.

#### **2.4 Digitisation for holding complementation and enrichment**

Some institutions more or less systematically digitise or acquire digital copies of material belonging to other holders in order to complete their own holdings or establish collections thought to be important for the institution's mandate or field of activity, or for its users.

In such cases the digital copy will also be the only form (except for, perhaps, printed copies) in which such material exists in the institution. It is subject to the same requirements with respect to protection and accessibility as stated above.

### **3. Factors influencing the success of digitisation**

The preservation and accessibility of material in an electronic environment are more interdependent and interwoven than is the case with traditional forms of material. The claim that something must be preserved in order to be accessible is not the only criterion valid here; something must also be accessible and usable in order to be preserved (for a longer period of time). Preserving material permanently in digital form also means making it continuously accessible.<sup>9</sup>

Whatever the basic reason for digitisation indicated in a specific project the requirements for the digitisation procedure and product will be similar.

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<sup>9</sup> Thus, the text of the *Law on Electronic Documents* also specifies continuous accessibility through information technology as one of the essential properties an electronic document must have in order to be valid and reliable.

Today the production of digital copies and their storage are not particularly demanding tasks, but those are only two, perhaps the simplest components of the digitisation process. The success of the project and the usability of its ultimate product will depend on the following factors:

- digitisation goal and scope
- selection and properties of the original
- capacity of available technology for copy production
- degree of processing of the digital collection
- capacity of available technology for digital collection management and access

These factors are closely interrelated. The people preparing and managing digitisation projects must be aware of the consequences and limitations possibly deriving from the interdependence of these factors in specific cases.

### **3.1 Goal and scope of digitisation**

The consideration of a digitisation project usually starts with technical questions such as: which digitisation equipment to buy, which format and which medium to use for data file storage, which scanning parameters to set, etc. Such an approach may easily divert attention from other factors to be considered, as a rule even before the choice of technology and before decisions on technical and other details are made.

A digitisation project ought to define from the very onset a clear and measurable goal, more accurate and more specific than what is usually indicated when speaking about the benefits of digitisation as such. Looking at the project by beginning from its end would be a good starting point: what will remain after the project expires; what will be the benefit for the institution and its users; what difference will the project make, and how much is that difference worth; what for and how will the product of the project be used, and where will that lead the institution itself.

As a rule the consideration of the digitisation goals will also include the comparison and the evaluation of different options. The institution concerned must know how to explain, to itself and to others connected with the project in any way, why it wants to achieve the selected digitisation effect and not some other ones, and why it picked the specific way to accomplish it rather than some other way. If the options are properly assessed, the arguments for the decision on the selection of the project and the definition of the anticipated effect will be explained more easily, and work on the project will also be easier. All the participants must be informed about the purpose and goals of the project so that they can thoroughly understand the role of their segment of the project.

Digitisation projects serve to accomplish the goals of the institution as a whole, and should be evaluated within the context of the overall activity of the institution in the fulfilment of its mandate, within the scope of its long-term policy of the building and protection of the holdings, the accessibility, supply design and development of services, etc.

The determination of the digitisation goals and project selection will also be largely influenced by the evaluation of the capacity of the institution concerned and its partners with regard to available resources, infrastructure, organisation, competence and risk assessment. In this respect, of course, the institution must take due account of realistic possibilities but it also has to devise and adopt an active approach to the development of organisational resources and capacity or make use of external resources, so that over time digitisation becomes less dependent on current resource circumstances and limitations - as is often the case - and becomes increasingly geared to the overall policy of the institution and to the goals it wishes to achieve.

In terms of their importance and impact on the activity of the institution digitisation projects can be divided into three groups:

- digitisation as a means of achieving the basic goals of the institution (acquisition, protection and use of material);

- more limited projects whose development, purpose and scope are governed by specific reasons;
- sporadic digitisation as technical support in a specific activity.

Digitisation as a means of achieving the fundamental functions of the institution is certainly the most sensitive and most demanding form of digitisation for the institutions and their resources. It can imply a more thorough change of the concept of specific business functions and more delicate changes in the mode of operation and resource channelling, and as a rule it will also require a more serious upgrading of professional resources and competences available to the institution.

Digitisation focused on the achievement of fundamental functions is not primarily the digitisation of material but first of all the digitisation of part of the institution's business. As a rule it is not reduced to one or several projects with a predefined beginning and end, although this is also possible (especially in smaller institutions), but develops rather into a continuous activity.

The institution deciding to embark on this form of digitisation should carefully evaluate the requirements and check the possible answers, risks and its own capacities. If it commits major mistakes or omissions the institution will not be able, at a given moment, to provide a satisfactory level of performance in some of its basic functions. Thus, if an institution starts digitising for the sake of protection, and does not ensure appropriate and reliable continuous preservation of protective records, over time the protective role of the copies will decline and the risk of total loss of the function will increase. The same applies to cases where originals are still being used, after full digitisation, as if digital copies did not exist.

However, in assessing requirements and risks one ought to bear in mind not only those that are likely to turn up with the introduction of digitisation procedures but also those that can be the consequence of (longer) delay or neglect in introducing procedures that were considered necessary or appropriate.

The digitisation of material in cultural institutions will very likely start with smaller, more focused projects with a specific, limited subject matter and scope. This can involve, for instance, the presentation of mainly representative objects or units, thematic online exhibitions, contributions to cooperative projects or primarily promotional projects, etc.

Apart from involving a much smaller scale of digitisation and smaller impact on the performance of the fundamental functions of the institution (which basically continue to operate as before), such projects do not imply a continuous activity (digitisation ceases as the project is completed unless, of course, another similar project is started), nor continuous project management and implementation. Although such projects can be set apart from the other activities in the institution, and the load on resources is smaller and limited in terms of time which is why such projects are feasible, the exploitability of the project results can also be limited in time, either because the result is no longer accessible or because it is replaced by another, possibly better content having the same or similar function. This is probably also one of the reasons underlying the relatively modest contribution of such projects to the development of concepts of long-term preservation and exploitability of digital contents.

Conversely, over a relatively short period of time such projects can offer services or contents which are in demand or sought at a given point in time, thus contributing to the overall output of the institution. Moreover, they can also be very useful for the development of the professional and technical competences of institutions engaged in such projects, for a better understanding of technology and of the possibilities offered by digitisation, and for the development of broader standards, specifications or instructions related to specific aspects of digitisation.

The most frequent forms of digitisation, used as technical support for other activities in the institution, include the provision of copies for users, publications and promotional material; some institutions also digitise existing finding aids, catalogues

and ancillary documentation. Digitisation for such purposes is beyond the scope of this document.

In specific cases the selection of a solution and the design of the digitisation project will be influenced to a greater extent by the goals and functions of digitisation within the overall activity of the institution rather than by other specific factors such as the properties of the original, the type of material or type of institution preserving the material.

### **3.2 Properties of the original**

Three groups of properties of the original are of particular relevance for their digitisation:

- content, context and the meaning attached to the original
- degree of arrangement and organisation
- physical features of the original and its content

The first group of properties directly influences the choice of material for digitisation; in other words, a specific context makes a type of originals worth digitising. Digitisation implies selection because it would be useless to digitise everything even if that were feasible. Selection for digitisation follows a logic and effect similar to decisions about the type of material to be collected and preserved in the institution; therefore, it depends on the mandate and goals of the institution as understood by the decision-makers.

Just as in any other matters that are based on value judgments, it is difficult to talk about unambiguous, fixed and non conditional criteria for selection in terms of the content and meaning of the material. An institution can be run by standard general criteria such as the following: the recorded and anticipated interest in specific contents and themes in the community to which services are offered; the uniqueness, information value and exploitability for different user needs, reasons or scenarios of

use (e.g., targeted digitisation for educational purposes), the representative character and meaning for the identity of the institution and its holdings, etc.

One of the fixed rules which also applies to the digitisation of material regards the need to avoid recording, systematic recording in particular, of poorly ordered material. As a rule, requirements related to the level and precision of orderliness, identification and technical preparation to be achieved before the recording itself in order to make it smooth and reliable are more stringent than when originals are used. The preparation for recording basically means that the material has been arranged in a condition and order matching the envisaged recording procedure and record organisation and storage. The preparation for the recording should also give due consideration to what the final digitisation product will look like and how it will be used, and should ensure the smooth running of the subsequent process

For every digitisation project it should be specified what, in the specific case, appropriate good order and preparation for recording entail. If the process is to run smoothly, all the participants must be familiar with the requirements related to the preparation for the recording, and they must all understand and interpret the requirements in the same way in order to avoid any misunderstandings and delays in the course of the project.

A digital collection produced by digitisation represents the original(s) and, thereby, its (their) structure and organisation. The means for achieving the representation of the structure of the original includes physical and graphic identifiers and containers which cannot be digitised in a way which completely preserves the function of representation of the structure. In a digital environment such identifiers should be replaced by other forms of representation of the structure matching the technology applied. Structure identifiers should be preserved throughout the digitisation procedure because this helps to avoid the often demanding job of structure resetting and object organisation in the collection.

The second usual means for the presentation of the structure of collections and holdings are finding aids, or rather specific data groups which can be found there, often even in an implicit form (such as a structure represented by a graphic layout of descriptive records). Such data ought to be made explicit and stated formally as discrete data elements in order to show the same structure within the digital collection. This in its turn implies an analysis of the original finding aids and of the functionality of data elements and their contents.

One should keep in mind that, if the material is recorded for the sake of accessibility, the way and options of search and browsing through the collection need not remain identical to those relating to the original from which the digital collection was created. From the user's angle in such cases there appear two somewhat different environments, scenarios and experiences in searching for the requested information, and they can produce different understandings of what is being searched and used. In the last analysis the user making use of a structured finding aid in the traditional form and the user querying the database in seeking the same item or unit of information will probably end up with a different image of the resource they are using and a different contextual understanding of the object of their interest. This option depends to a considerable extent on the preservation of the presented structure of the material involved, which is why it is important to preserve the structure even though the perception of the material and the digital form cannot be the same.

The physical features and the condition of the original are often considered to be the most important properties of the original because they directly affect the choice of technology, and of recording parameters and techniques. The basic relevant physical properties are the following:

- size and form of the original
- type of material and its physical properties making it suitable or unsuitable for specific types of digitisation equipment

- condition of the original and possible damage
- type of record or contents (text, picture, drawing etc.)
- record quality, size and legibility, and details about the material
- arrangement of the contents
- visual representation of the contents (relevance of colour, layout and other visual details carrying information)
- uniformity/variety of types and forms of models in the ensemble which will be digitised, and uniformity of the type and quality of the recorded contents

### **3.3 Digitisation technology**

Current state-of-the-art digitisation technology poses no major limitations regarding the digitisation of archival, library or museum holdings. If the institution has determined the purpose and scope of digitisation satisfactorily, and is familiar with the relevant properties of the original, the choice of the technology and of the equipment for the production of digital copies from specific models is not particularly demanding.

The dimensioning of the digitisation equipment and systems required for the overall digitisation programme can be more challenging, as can be decisions regarding the line of development of one's own infrastructure, as compared with resorting to other solutions such as the development of shared resources serving several institutions, or the use of equipment and systems of other institutions through cooperative projects or other forms of cooperation, or the use of external resources.

The role of digitisation in the performance of the fundamental functions of the institution and in the planning scale of digitisation will also largely affect the decision whether to produce whether digital copies in the institution itself, which

implies the acquisition of the necessary equipment and the provision of the required operators, or to outsource the job.

The production of digital copies is only one of the operations covered by digitisation in the broader sense. Accordingly, in the selection of technology due attention should be paid to the integration of the procedure into the regular working process.

The selection of digitisation technology is largely conditioned by available resources, but it would be wrong to conclude that the availability of resources influences only or primarily the choice of technology. It influences in the first place the choice and design of feasible goals and digitisation policies, the type and content of the projects to be initiated, and only then the choice of technology and other similar issues.

### **3.4 Degree of digital collection processing**

Digital copies are not a finished, usable or permanently sustainable product. Whatever the main goal of digitisation, the form and degree of processing are essential for its achievement.

However, the degree of collection processing is a fairly loose term and it can be interpreted in a variety of ways. The best way to establish certain limits to this looseness is to define the degree of processing in terms of the function of the collection and of the requirements governing its maintenance. The user has no problems in dealing with a processed collection and understanding the logic of its organisation. The user can easily identify the units in the collection, its beginning and end, and its relation to other units. If the collection is intended for use, a competent user can derive usual or anticipated search modes without any particular help from professional staff and with a certainty that the search was complete and reliable.

Any material, digital collections included, is also processed in order to facilitate its management. If a digital collection is processed in a way which makes it difficult, without additional operations on the collection, or even impossible to carry out

specific operations required for appropriate protection (review of the condition of the collection, its transfer, updating, reformatting, documenting the changes, etc.) or usage (determination of the right of use, content delivery, use documentation etc.), the degree of processing is not satisfactory and final.

Processing requirements must never be underrated. Even if the original is processed extremely well, the digital copy need not automatically inherit the functional features reflecting the degree of processing of the original. The processing of a digital collection can be even more demanding than its transfer to the digital form. Sometimes it can even be more difficult if this has been neglected while preparing the material for recording.

### **3.5 Long-term preservation and management of digital contents**

Digital collections are not created for serving a short-time purpose and becoming useless: this may apply to some forms of presentation and use, but not to the actual content of the collection. In principle a content produced by digitisation of archival, library and museum material ought to be kept for a long time. The term possibly set is not of crucial importance in this regard: the preservation of something in an electronic environment even for only five to ten years implies long-term preservation because even in that relatively short period of time since the creation of the digital object one can expect operations required to ensure lasting preservation. Long-term preservation starts in any of the following four cases:

- 1) serious change of the information system used to manage the contents;
- 2) transfer of the contents from the original to another information system;
- 3) termination of the original purpose underlying the creation of the contents;
- 4) loss of creator's interest or capacity to preserve the contents.

Long-term preservation of a digital contents implies the long-term, continuous insurance of management and access to the contents, and these functions are provided for by the information systems. The long-term preservation strategy must include the maintenance of these functions even in the (inevitable) case involving a change of the system

The capacity of long-term digital content preservation must be continuous and verifiable. While traditional forms of preservation of material may perhaps allow for an occasional lapse of the level of preservation or poorer preservation conditions, an occasional lapse of the preservation level or loss of capacity of digital contents will mean much more frequently the loss of the contents itself.

The capacity of long-term digital content preservation is much less widespread and even more poorly defined than the capacity to produce such contents. In time such contents will become less accessible, they will lose their properties and disappear, which applies equally to contents having no lasting value and to those that may have it.

#### **4. Digitisation programmes**

The implementation and the results of digitisation programmes are influenced by a variety of factors ranging from specific operating and technical issues to the institution's goals and policies. In particular, in the implementation of digitisation programmes with a greater bearing on the performance of the basic functions of the institution due attention should be paid to the consideration of all the foreseeable consequences and to the underlying principles both at the decision-making stage and in the implementation of specific programme segments.

**Principle 1: An institution seeking to digitise its holdings or to build its own digital collections in a different way needs to consider and adopt its own digitisation policy.**

An unsystematic or non integrated digitisation, or a string of individual self-contained projects will not yield the result which could be accomplished by a clear-cut policy and systematic digitisation planning.

The digitisation policy needs to establish distinct long-term goals to be achieved by digitisation, and supply a sound explanation of why digitisation was chosen for this purpose rather than another technique or modality. It should also evaluate and explain the influence of the planned digitisation on overall activity and on certain functions of the institution, in particular fundamental ones.

The argumentation of the adopted digitisation policy will also include the appraisal of other possibilities and scenarios, including the analysis of advantages, shortcomings and risks deriving from the acceptance or lack of acceptance of a specific option. Such an analysis promotes the understanding of the significance of the adopted policy and offers some security that the decisions made are well-considered and correct.

All the staff and associates must be informed about the digitisation policy and understand it well; this holds true for the people involved or potentially involved in the digitisation projects as well as for the persons whose scope of responsibility and activity will be influenced by the digitisation projects (e.g., staff working on the protection of the holdings, the user service, etc.).

The digitisation policy should comprise criteria, or at least the possibility of developing sufficiently clear criteria by means of which the institution will be able to evaluate and decide what projects to implement, the key properties of the projects to be considered in the process, and the reason why the digitisation of specific material or a specific project have been preferred over other options.

The digitisation policy also needs to consider the resources required for its implementation, the long-term development of required resources and organisational and professional skills, the identification of the possible crucial points and risks, and the effect of the provision of resources and organisational skills on the overall resources of the institution.

Another integral part of the digitisation policy will be the definition of responsibilities for the policy, and for its implementation and evaluation. The management of the institution must bear in mind that it is responsible for the adoption of the policy, for the understanding of the policy at all levels of the organisation and for the provision of support.

However, it should be clear that the digitisation policy does not necessarily require a separate document outlining its elaboration or design. It can also be incorporated into the institutional policy which covers the activity for the sake of which digitisation is being implemented. Sometimes this can even be more appropriate in order to better highlight its meaning and context.

There is hardly a digitisation manual that does not draw attention to the importance of good project planning and management. Good planning enhances the prospects for the successful completion of the project but also helps to reduce the number of contingencies appearing during work on the project.

In terms of their structure and issues to be resolved digitisation projects differ somewhat from projects familiar to the staff in cultural institutions. They include the participation of experts from different fields and, frequently, external associates. This is why it is very important to ensure the clear understanding and proper interpretation of the project by everybody involved in it, so that everybody may know exactly what to do, how to do it and when to do it. The complexity of digitisation projects is also influenced by the activities related to different segments of the institution - technical and similar aspects of the production of digital copies as well as issues related to the protection, processing and presentation of contents.

**Principle 2: Digitisation activities must be translated into projects with clearly specified project goals and products, a plan of activity, responsibilities, resources and evaluation procedures.**

A plan can hardly be expected to cover all questions that may emerge during work on the project. Nevertheless, it is important for the boundaries and the structure of the project to be defined as accurately as possible which will make them less susceptible to different interpretations and set in realistic frameworks. The most common questions related to the drafting of project plans are covered in *Annex A, Planning and management of digitisation projects*.

The properties of the original have a multiple effect on different aspects of digitisation, from goal setting and resource planning to the choice of technology and specification of procedures.

**Principle 3: The material for digitisation should be selected carefully and prepared thoroughly starting with the goal and course of digitisation. The preparation for digitisation always includes metadata preparation.**

One of the objectives of the preparation of material for digitisation is to ensure the smooth production of digital copies and secure appropriate record quality. Good preparation depends on the procedure and equipment used in processing the originals and on the possible effect of the condition of the material on the course and the results of the procedure. Preparation of the material for digitisation calls for a thorough definition and knowledge of the course of the procedure and of the specific equipment or systems used in digitisation.

Another important objective of the preparation for digitisation involves the smooth establishment of an appropriate structure for the produced digital objects. Digital copies always belong to some structure, but at certain stages of the procedure this can also be derived from the course and the segmentation of the working process rather than from the original or target structure. The staff in charge of a specific stage of the procedure must know the structure of the result required by subsequent processing stages as well as its necessary identification and presentation.

The third, not less important part of preparation of the material for digitisation is the preparation of data about the material. The role of (meta) data to be forwarded to the digitisation process together with the material itself can be twofold: some data are essential for the identification, organisation, description and use of the eventually produced digital collection, while others are required for the digitisation procedure proper.

Recommendations for the selection of material and summarised instructions for the preparation of digitisation are outlined in *Annex A, Planning and management of digitisation projects*.

**Principle 4: Whenever possible, standards and standardised procedures should be applied.**

The following aspects of digitisation can be singled out as being of special interest and lending themselves to standardisation: 1) the procedure of digitisation proper, i.e., of the transfer of the original into digital form; 2) data file formats and permanent storage media; 3) metadata specifications for the resource (identification, technical, descriptive and other metadata); 4) the functional specification of the system for permanent storage and management of digital (including the entry procedure).

Standards governing the procedure for the transfer of material into digital form seek to answer the question of how to digitally record specific types of models, e.g., textual models, pictures and other graphic contents, large format models, maps and blueprints, films and microfilms, black-and-white and colour models, etc. The goal of the standards is to determine the parameters of the recording procedure and the properties of the digital copy (size, resolution, colour, etc.) which the recording procedure ought to yield in order to produce a good copy of the original. The standards and recommendations related to this field vary and are often incomplete.

Earlier approaches to the long-term preservation of digital records usually focused on data file formats and storage media. By analogy with the preservation concept of traditional forms and record carriers such as paper, effort was focused on finding a long-life storage and transfer medium and a format as resistant to technological change as possible. As opposed to this, recent approaches emphasize the importance of maintaining the functions of digital object accessibility and management, and the

preservation of object properties as a function of the information system as a whole, while the choice of the medium is no longer a key factor.

As regards the storage media, life is no longer considered to be particularly significant because records have to be transferred to another information environment transferred to another format or to another medium in a relatively short term anyway. Therefore, it will suffice to say that advantage is given to widely used media formats found to be reliable record carriers for a shorter term (a dozen years) and offering a good price to capacity ratio, or to special systems for mass storage and digital record management.

Specifications of metadata on digital material and objects are a somewhat more demanding subject of standardisation because they depend on the type of material and on the way it has originally been processed and described, on the established rules or approaches in the production of finding aids, on the purpose of digitisation, on the environment in which the produced digital material will be used and on the coding technique. Because of this standards and given specifications, often produced for the requirements of major projects, rarely tend to be comprehensive or exhaustive, leaving the institutions managing digital contents to fit their own or other specifications thought to be necessary or suitable considering the nature and purpose of the contents in question into a specific framework or concept of metadata organisation.

The management of digital object and material metadata is more complex in comparison to traditional material for two reasons. First, digital object management is practically impossible without an organised supporting metadata system; in many cases it will not even be possible to identify the object in any way other than by appropriately organised metadata. Second, as a rule the quantity of the metadata to be recorded and preserved along with the digital object will be much larger and will involve a greater number of technical and transaction data to be covered by and

organised into the metadata system, greater than that involved in the production of the object itself.

Here are some of the questions that need to be answered in any specification of metadata on digital objects and resources:

- which data will be used to identify digital objects;
- which technical metadata (data files, data file sets, data segments) have to be recorded;
- which transaction data (origin, processing, history etc.) have to be recorded;
- which data have to be recorded as support to resource management (support of verification procedures, access and delivery, copying, change of format etc.);
- which index and descriptive data must be recorded for the purpose of searching and understanding of the object, its context and content;
- how to ensure coordination and required interoperability with other systems, and support for building cooperative services;
- how to code metadata in order to assist an effective and rational metadata management and exploitation;
- how to ensure metadata durability.

As a rule the digitisation of archival, library and museum holdings produces contents which are not of mere passing significance. Such contents and their properties and exploitability must be preserved permanently or at least for a longer time. Therefore, any digitisation programme or project must describe what will happen with the produced digital contents after the project is completed, and where and how its integrity and exploitability will be preserved and ensured.

The understanding of the need for prolonged preservation and of the related requirements is the precondition for the long-term building and development of electronic contents and services.

**Principle 5: A digitisation programme needs to consider and offer answers to questions related to prolonged preservation and management of digital collections.**

Poor competence for prolonged preservation and management is due to several causes. Even if they do refer to prolonged preservation, digitisation projects often do it only in part and *ad hoc*, to the extent necessary for the project so that the product of the project may be stored after its completion. However, preservation is a much broader concept than mere storage. Interestingly enough, the development of capacity for building and preserving digital contents and services, at least according to the current situation in Croatia, is tackled less systematically and less thoughtfully than in the case with the traditional types of material. If the decision is taken that a certain material ought to be collected, processed and made accessible somewhere, it is self-evident that it is necessary to ensure adequate and sustainable organisational conditions (sometimes even by founding a new institution), qualified personnel, premises and equipment, and to have at least a framework business plan and a well-elaborated operational plan. For some reasons digitisation projects are often started with markedly provisional and partial answers to requirements of this kind, probably expecting that matters will sort themselves out in the future.

However, the questions related to long-term preservation and management of digital collections cannot be answered by simple decisions such as postponing digitisation until the achievement of the required functionality and reliability of the system for long-term preservation. Such an approach would result in a reduction of digitisation activities and generally of the building of digital contents and services, and would hence impair the very development of the capacity for their long-term preservation.

However, it is precisely the continuously increasing quantity and significance of digital contents, and the lack of knowledge about how long they can be maintained in an exploitable and reliable form, that has given rise to a much better understanding of the issue and to the development of concepts and technologies for the long-term preservation of digital contents, and of professional and organisational capacities and resources.

**Principle 6: A good digitisation programme envisages and implies the systematic development of organisational capacities and resources, high staff involvement and cooperation with other institutions.**

Through the systematic development of professional and organisational capacities and resources institutions can plan and devise more ambitious digitisation programmes of higher quality which will support the accomplishment of the institution's mission and goals.

Capacities and resources imply above all the capacity to produce and maintain digital contents and services, and not necessarily the possession of one's own equipment and infrastructure. This conclusion is particularly appropriate when it refers to cultural institutions which are mainly relatively small, have a low budget and are understaffed, and the provision of their complete infrastructure would be too demanding in relation to their total resources. In such cases cooperation with similar and other institutions or service providers, or the cooperative development of infrastructure and capacity appear to be the logical, sustainable solution in the long run.

**Principle 7: The digitisation programme should also include standards and procedures for quality monitoring and assurance.**

Quality can be monitored and maintained only if it is defined. The monitoring of quality is based on the interdependence relation between the digitisation product and its clearly defined properties, in relation to the given, independently established parameters and criteria, and the goals of the digitisation project. The monitoring of the quality of the digitisation process is also desirable, but it also requires the definition of the object of monitoring and of the criteria, and standards for the appraisal of harmonisation.

**Principle 8: The digitisation programme should take due account of the protection of copyright in line with current regulations.**

The object of digitisation can be copyrighted and copyright-free works. According to the *Law on Copyright and Related Rights* (Art. 99), copyright is in force during the author's life and seventy years after the author's death regardless of the date of publication of the copyrighted work. So far digitisation programmes mainly cover old material, that is, material not subject to the payment of any fee to the copyright owner. In order to attain comprehensive coverage, advanced stages in the development of digitisation projects also include copyrighted works, which poses special questions for the institution concerned. Since the nineteen-nineties these questions are the concern of many international bodies such as those in the field of librarianship.

In 1998 the Culture Committee of the Council of Europe convened an international conference devoted to library legislation and library policy in Europe. The *Guideline on Library Legislation and Policy in Europe* included recommendations to national political bodies for the regulation of the relations between the producers, distributors and users of analog and digital material. In 2000 IFLA adopted the *Statement on Copyright in the Digital Environment* highlighting the fact that legal copyright provisions affect all user-focused library service and define the conditions under which material can be accessed. IFLA's position was that libraries must maintain the balance between the interest of the users and their right to free access, and the interest of the author in terms of the author's right to a fair compensation for his/her intellectual work. According to IFLA's basic position, the digital environment does not differ from the analog one to an extent which would justify enhanced protection of the author to the disadvantage of the user. In this sense, in Article 5 the *European Union Guideline on Copyright* from 2001 lists exemptions from copyright protection which also cover library needs.

The *European Union Guideline* and the *Law on Copyright and Related Rights* (Art. 84) harmonised with it allow for limitations to the benefit of specific institutions. According to the Law, public archives, public libraries and educational and scientific libraries which do not charge their services can reproduce (in a single copy) an author's work from their own copy in any medium. This allows for the digitisation of analog material for the purpose of its protection but not for access to such material through the web, i.e., its use. Since the early nineteen-seventies the goal of important digitisation projects has been precisely the improvement of the accessibility of material. Because of this, before digitising copyrighted works libraries, archives and museums need to negotiate and conclude agreements on conditions of access to digitised material with copyright holders or organisations representing them. In the licensing process difficulties can sometimes arise in identifying the copyright holder; thus, during the work on a project part of the material can be found to belong to so-called *orphan works*, i.e., material for which the copyright holder cannot be identified. If the project leader decides to include such material, a statement in that regard will be required when such digitised material becomes accessible to the public.

The programme of newspaper digitisation deserves special attention because every contribution in the newspapers is considered to be an author's work, and the contents of the newspaper as a whole also enjoy copyright protection. The copyright holder, i.e., the person who will permit the reproduction of the work(s), must be identified before actual digitisation. This is not always easy when newspapers are concerned because the copyright holder can be the journalist and/or newspaper owner and/or a press agency; moreover, newspaper owners can change. In negotiating with the copyright holder distinction needs to be made between reproduction for protection and reproduction for access. An institution wishing to digitise newspapers should first try to contact the copyright holder informally. If that should fail, an agreement ought to be concluded with the following provisions: a) the agreement must permit all preliminary operations required for the digitisation of newspapers; b) the agreement must define the object of the licence (access or more); c) the copyright

holder can require the posting of a notice on the digitised material, containing information on the copyright holder, of the allowed use of the material, or both; d) the copyright holder can request the institution digitising the material to guarantee its integrity through a technical or administrative measure.

## **5. National Digitisation Programme**

### **5.1 Introduction**

Most of the currently established principles and concepts used in the digitisation of archival, library and museum holdings have been developed within the scope of programmes or projects named or considered to be national. What makes these programmes and projects national, and why are they seen in this way?

As a rule, such programmes or projects involve the participation of several different institutions or organisations, often with a national tag nor label. They are often initiated or supported by agencies or organisations whose mission includes the concern for the design or implementation of policies in a specific cultural domain.

In addition to this organisational aspect and the broader involvement of institutions, the specific goals of the projects and the expected effects of their products are also important. The results of such projects often include standards, guidelines and specifications expected to yield broader applicability and availability to all interested parties and not merely to the participants in the project. A project whose goals include the creation of a harmonised information environment and of system and content interoperability can easily be considered to be national or at least more widely relevant.

Some projects are also labelled as national because they aim to create nationally identifiable and relevant digital contents and promote them as such. Others are less focused on the direct production of such contents and concentrate instead on creating better conditions and stimulating others to contribute through their own high quality projects and products to the creation of rich information and cultural contents and services in the electronic environment. Some programmes also seek to build a concrete infrastructure transcending the institutional framework, and systems for the support and monitoring the achievement of digitisation policy goals.

The foregoing warrants the conclusion that digitisation programmes are not considered to be national by including the digitisation of material of special significance or national interest but, rather, primarily by their impact and contribution to the creation of a stimulating environment for the digitisation of holdings and the supply of digital contents. This conclusion will serve as the basis for the determination of the content and activities of the National Programme for the Digitisation of Archival, Library and Museum Holdings.

What motivates institutions to initiate such programmes or join them? The first answer is certainly lies in the awareness that they do not have answers to all problems to be resolved in connection with digitisation and digital collection management, and that they would hardly be capable of devising appropriate solutions. In national or other cooperative digitisation programmes they see the possibility of removing the perceived obstacles and secure the professional and other resources required for this purpose. Participation in such programmes and the use of their resources, and the possibilities to present themselves to their users and promote the accessibility of their material enhance the effect and scope of their own activity. This is also expected to lower the risk from wrong decisions and choices.

Agencies and organisations designing and directing policies in specific domains and financing projects expect such programmes to lend support for decisions on policy development and insights for an effective and rational channelling of resources and activities. They will probably want to achieve the best possible harmonisation and integration of their digitisation programmes into the adopted national policy and programme of activities focused on the building of the information society, cultural contents and services.

The national digitisation programmes ought to bear these expectations in mind and envisage what it should specifically provide or secure in order to be considered usable and properly focused.

The national digitisation programme should also bear in mind the policies, development plans and trends in those domains and institutions to which the programme can relate, and the conditions and the environment in which they operate.

In addition, the national digitisation programme should seek to achieve the best possible integration of overall digitisation activities into the adopted policy and the trend of development of information society services.

Finally, the national digitisation programme should consider the possible consequences of systematic digitisation or of its absence on the future way and conditions of operation.

## **5.2 Goals**

As indicated in the introductory chapter of this document, the National Programme of Digitisation of Archival, Library and Museum Holdings seeks to achieve the following:

1. Digital collections produced through the digitisation of archival, library and museum holdings must be of good quality and usable for the protection of the material and improvement of accessibility.
2. Digitisation must be carried out through appropriately planned and managed projects in accordance with well-known principles and priorities, and established standards.
3. Digital collections must be accessible to their users in line with the rules governing their use.
4. As a whole the digitisation of holdings leads in the long run to the creation of identifiable contents

and system of services in the electronic environment.

5. Digital collections require an organised management systems providing sufficient guarantees for their lasting preservation and accessibility.

What is the key precondition for the achievement of these goals, and what answers are to be provided by the National Programme?

**1. Digital collections produced by the digitisation of archival, library and museum holdings must be of good quality and usable for the protection of the material and improvement of accessibility.**

The accomplishment of this goals calls for answers to a number of questions. What assures the quality of a digital collection? Which properties are required to make it suitable for protection, and which to make it suitable for improving accessibility and usage? What makes an institution capable of producing such collections, and how does it achieve this capacity? In this connection the National Digitisation Programme envisages the following activities and effects:

*A. Specifying the digital collection model and stimulating its application*

The required properties of a digital collection and the criteria for its design can and need to be described less formally, although it would be more useful to produce a fairly accurate specification of the digital collection model and offer it to institutions developing their own digital collections. Though the properties and criteria for designing the collection be extremely precise, most institutions will not be able to produce a (meta)model of the digital collection, and if this were the case, one could expect sufficiently differing specifications and, as a result, insufficient harmonisation and linkage. This is why it is desirable to have a good general specification applicable to different institutions and different types of material.

In addition to the specification of the model the promotion of its application is also important along with its maintenance in keeping with new needs, changes in the technological environment etc. In other words, a person responsible for the production and development of the specification should be appointed.

*B. Developing a system of support to institutions digitising their holdings*

The capacity to build high quality digital collections is a relatively new requirement facing cultural institutions. In addition to specific resources it calls for the development and adoption of new knowledge, new approaches and new technologies of operation. Institutions seeking to digitise their holdings should have a place to turn to for help and reliable and comprehensive support.

A support system or centre would contribute not only to the transfer of knowledge and experience; its activity would also be of importance for achieving the harmonisation, development and application of standards and recommended procedures, and for stimulating activities focused on creating rich digital contents.

*C. Building a system for monitoring the quality of digital collections*

The support provided in the creation of high quality digital collections rather than just any kind of collection will require the drafting and introduction of specific procedures for quality monitoring in order to check whether the collections have been designed in line with specific requirements or specifications whether they depart from them, whether they fit the purpose which they are supposed to serve and the envisaged use, whether they are sustainable in the long term, etc.

Such a system needs to comprise internal and external monitoring and verification of quality. Institutions have to be stimulated to monitor themselves and monitor the quality of their digital collections against, for instance, the national digitisation policy and the decision on project support.

For external quality monitoring a structured monitoring system and procedure(s) need to be established and persons responsible for their implementation appointed.

One of the options would be the use of a catalogue, i.e., register of digital collections which would include the quality evaluation procedure.

**2. Digitisation needs to be carried out through appropriately planned and managed projects in accordance with well-known principles and priorities, and established standards.**

Every digitisation programme or policy is expected to answer questions such as what to digitise and how, how to organise digitisation, how to process and organise digital recordings, etc. In support of digitisation projects the National Programme can offer several aids, conditionally speaking, and prepare standards or recommendations for specific digitisation aspects and products.

The procedures used in producing digital copies need to be well-defined in advance for a variety of reasons. First, it will allow institutions to save effort and resources otherwise spent on defining the procedures. It will also help to make digitisation easier and cheaper, and the path to the results shorter and more predictable. Second, it will facilitate the achievement of uniform quality and verifiability of digitisation products. Third, it will help institutions engaged in digitisation to shift the focus from issues related to procedures and technologies to the purpose and goals of digitisation.

In this regard, the National Digitisation Programme ought to offer the following:

- A. *Instructions for planning and managing digitisation projects*
- B. *Framework criteria for the determination of priorities and the selection of material for digitisation*
- C. *Instructions for preparing material for digitisation*
- D. *Instructions for digitising different types of originals*
- E. *Recommendations for data file formats*
- F. *Recommendations for internal monitoring and documentation of quality of the digitisation procedure*

- G. *System of support for the application and development of digitisation standards*

**3. Digital collections must be accessible to their users in line with the rules governing their use.**

Digital collections need to be accessible not only for use but also because lasting accessibility is closely related to the preservation of the collections themselves.

Accessibility does not depend merely on digitisation, i.e., on the design, building and supply of digital collections. Accessibility requires an appropriate infrastructure which also serves purposes other than digitisation itself. How can the National Digitisation Programme stimulate the accessibility of digital collections?

- A. *The National Digitisation Programme ought to stimulate the production of digital collections designed and processed for usage (see Goal 1.A).*
- B. *The National Programme should stimulate a policy of investment and promotion of digitisation projects which will include the development of facilities and tools for access and use.*
- C. *The specifications of the system for digital collection management should also envisage the minimum requirements for use (see Goal 5.A).*
- D. *The National Digitisation Programme should stimulate investment into computer information infrastructure which will follow the line of development of the technological foundation and infrastructure for accessing digital contents.*

The achievement of this goal and of some other goals in this chapter will depend on the ability of the National Digitisation Programme to influence the allocation of resources by focusing on the computerisation of institutional and other activities and not only on digitisation alone.

- E. *The National Digitisation Programme should offer or at*

*least stimulate the development of information services and network access points: digital collections catalogues, thematic portals, etc.*

**4. The digitisation of holdings as a whole leads, in the long run, to the creation of identifiable and relevant contents and system of services in an electronic environment.**

The production of relevant contents and service systems is a long-term activity, which implies focused work and the contribution of various institutions. The National Digitisation Programme can influence in several ways the process, the outcome of which is of particular importance for the achievement of the Programme purpose. Basically four groups of activities can be identified:

- A. *The determination of policies and priorities in the digitisation of archival, library and museum holdings, and the stimulation of projects fitting the adopted priorities.*
- B. *Active and targeted building of digital collections and services through the (cooperative) project organised within the scope of the National Programme.*
- C. *The development of standards that will ensure compatibility and a sufficient level of interoperability, and the monitoring of the application of the standards.*
- D. *The organisation of a consortium of institutions and other interested suppliers of digital contents, including the provision of infrastructure for the envisaged projects and contents.*

**5. Digital collections require an organised management systems providing a sufficient guarantee for their lasting preservation and accessibility.**

As a rule the products obtained by the digitisation of archival, library and museum holdings must be preserved and made accessible permanently or at least for a longer period. In the long run a digitisation strategy failing to ensure permanent preservation and sustainability of digital contents is not worth the cost and is not viable.

The key to success in the long-term preservation of digital contents lies in an adequate system for the management and permanent preservation of digital collections and in the capacity to ensure lasting and proper operation of such systems. This calls for knowledge about the envisaged functioning of such a system and about the components of the operating capacity of an institution or organisation to ensure long-term preservation of digital contents.

The method used in long-term preservation should be known and applicable starting from the production of digital material. In view of the current situation in this regard, the National Digitisation Programme needs to provide for the following:

- A. *Develop a functional specification of the system for the management and permanent preservation of digital contents with a sufficient level of precision, so that it may serve as the basis for the production or verification of such systems.*

The problem of permanent and safe storage is not specific only to the contents produced by digitisation, but is also important for all digital objects to be kept for a term longer than just a few of years.

A good digital archive is focused not only on the possibilities of storage but on the overall functions to be

supported by the system. This is why generally accessible systems for electronic data storage do not offer complete solutions. Some of the important issues requiring special consideration include the following: how to introduce a digital content into the system and be sure that we shall be able to show at any future time that it has retained its integrity and full exploitability in the procedure; how to form an integrated resource from different contents and data entering the digital archives over time; how to carry out the necessary content transformations while preserving the integrity of the contents; how to be sure that the contents will outlive the technology on which it was built; etc.

*B. Ensure as soon as possible the development at least one functionally capable and safe system for the permanent storage of digital contents and its accessibility to cultural institutions, and a respective redundant system in order to avoid the danger of losing the contents because of untoward events.*

Many institutions will not be able to build and permanently maintain a safe system for the storage and management of digital contents, nor would it be rational to attempt to achieve this goal. However, this need not mean that the institutions in question will not or should not develop such contents and services.

They could outsource the permanent preservation and maintenance of their digital contents to another institution or to a service supplier possessing the required technical and professional resources.

*C. In the development of standards and recommendations due account should always be taken of ensuring the transmissibility of contents and metadata to another information environment.*

### 5.3 Activities

The achievement of the foregoing goals implies envisaging the following four types of activities:

- development of standards, recommendations and specifications;
- provision of an organisational framework for the implementation of the National Digitisation Programme;
- establishment of the necessary technical infrastructure;
- creation of high quality and accessible digital collections and services based on them.

The suggested specific activities are the following:

- 1.. Initiate the cooperative National Project of Digitisation of Archival, Library and Museum Holdings (Goal 14).
2. Initiate a project or establish a body that will prepare the specification for digital collections models, and digitisation standards and instructions within the scope of the National Digitisation Project or along with it (Goals 1 and 2).
3. Organise a reference centre or service for the support and monitoring of digitisation projects (Goals 1 and 2).
4. Produce a portal with reference and support contents for the digitisation of holdings, project data and access to digitisation project products (Goal 3).
5. Organise cooperative digital archives with the required hardware, software and staffing backup (Goal 5).

The feasibility of the proposed activities depends on two basic preconditions which must be taken into account before the decision on their initiation: the actual determination of the interested institutions and agencies to engage in serious digitisation of their contents and services, and the availability of professional staff having the required expertise.

Few institutions will fail to take a positive stand in relation to the future digitisation of its contents and services. In Croatia there are already quite a few cultural institutions which sporadically or in a more or less organised way try to be present in the digital environment and supply digitised contents. However, what is questionable is the extent to which development in that direction is being evaluated and accepted as an essential frame of reference in the strategy of development of basic activities and services. Such an evaluation should primarily be demonstrated through the strengthening of the institutional capacity for the creation and maintenance of digital contents and services, the systematic allocation of resources and the development of the necessary expertise. Institutions seeking to join the National Digitisation Programme ought to examine these requirements in advance in order to see whether they really need digitisation, and take appropriate steps in order to attain the necessary level of institutional capacity.

The second basic precondition refers to professional staff, i.e., to human resources required for the implementation of the proposed activities. At present no cultural institution in Croatia can claim to have the experts with the required knowledge and expertise for systematic, long-term and sustainable building of digital contents and services. In order to be feasible the National Digitisation Project will need to ensure the active involvement of more institutions and their expert staff. Some activities will also probably require the engagement of part-time associates.

### **5.3.1            *The Croatian Cultural Heritage National Digitisation Project***

The goal of the project is to create and make accessible a set of digital collections of identifiable or national relevant contents, and bolster the institutional capacity of the institutions involved.

The project ought to involve a greater number of institutions engaging in a variety of activities - not only because of the proper selection of material for digitisation. One

of the important effects of the project should be the diffusion of capacity for high quality digitisation and the building of digital collections. Experience acquired by cooperation on the project will help institutions to upgrade their own capacities and become ready to offer some other digital contents and services.

The envisaged duration of the project is three years. After that the project founder and the project leaders ought to decide whether and in which form to continue the project, and who will take care of the project products and how that will be done.

The National Programme of Digitisation of Archival, Library and Museum Holdings is envisaged as an organisational framework for the implementation of the National Digitisation Programme. The project ought to bring together a consortium of institutions interested in the digitisation of holdings and whose resources and experience can contribute to the implementation of the project.

The basic goal of the project is the building of a digital resource consisting of a number of digital collections produced by digitisation of archival, library and museum holdings of national significance and identity, and assumed to be of significant public interest. The project will produce digital collections, processed, described and located in a digital archive system accessible through the project network headquarters. The network headquarters will permit uniform and comprehensive search of contents in the collections and the delivery of user copies of the material.

In organisational terms the project would include the Project Office, the founder of the project, the project leader, the Project Council, and institutions and organisations whose holdings would be digitised, or the leaders of specific digitisation projects integrated in the national project. The roles of the individual participants and the relations between them ought to be contractually determined.

The Project Office would be responsible for project coordination, the drafting of recommendations, standards and instructions, selection of projects for digitisation,

professional and technical assistance to the participants, design of the ultimate project product, assurance of quality, and project monitoring and progress reporting.

The founder of the project needs to set up the organisational structure of the project, ensure the resources for the Project Office, co-finance the accepted digitisation projects, the digital archives and the project network headquarters, monitor progress, and decide in cases that go beyond the competence of the Office.

Institutions taking part in the National Project with their digitisation projects and digital collections are expected to devise and propose projects in line with the guidelines and instructions to be drawn up by the Project Office, digitise their holdings, process and describe the produced digital collections in accordance with the rules of the National Project, and deliver them to the Project Office for integration into the final project product.

The institution(s) of the project leader is (are) expected to ensure the infrastructure for the operation of the Project Office and the infrastructure for the storage and access to the results of the project in keeping with the actual project needs.

It is also recommended to set up the Project Council consisting of the representatives of the founder, project leader, Project Office and institutions more heavily involved in the project, which would be tasked with monitoring and directing the course of the project, acting as adviser for major decisions, etc.

The National Digitisation Project should also be used as a good organisational framework for the preparation of guidelines, standards and specifications which can also be used for other projects, and thus stimulate a harmonised and uniform approach to the development of digital contents and design of cooperative systems and services.

Due attention also needs to be paid to the role which the project can play in defining the concept and development of infrastructure for the permanent preservation and accessibility of digital collections.

For a more detailed insight into the requirements and organisation of the project, the following listings of the necessary activities and their leaders are given below. The content and the mode of operation of specific activities, the course of the project and the detailed responsibilities of the participants, and the expected results of specific activities must be determined by the project plan.

<i>Activity</i>	<i>Leader</i>
1. Decide to initiate the project and set up the project office; establish the project council.	Founder
2. Organize the office, draft the project web pages.	Office, Leader
3. Examine in detail the content and scope of the project, its ultimate result; propose the project plan with the specification of the necessary resources.	Office
4. Consider and coordinate the project plan. 5. Approve the coordinated project plan, define the sources, rate and way of resource use	Council, Founder Founder
6. Draft the guidelines for digitisation projects within the national project, prepare the criteria and the procedure for project selection.	Office
7. Define the digitisation standards and procedures, prepare the specification of the digital collection model.	Office/ Working Group*
8. Propose digitisation projects in line with the requirements of the national project	Institutions

<i>Activity</i>	<i>Leader</i>
9. Process the project proposals and prepare project decisions.	Office, Council.
10. Approve proposed projects.	Founder, Council*
11. Implement the projects and deliver the product to the Office	Institutions
12. Monitor work progress, offer support, monitor and evaluate quality	Office/ Centre*
13. Set up digital archives capable of receiving and managing the delivered contents.	Leader, Office
14. Integrate the delivered contents into the digital archives.	Office, Leader
15. Define the system of access to the contents.	Office
16. Implement the solution for access to the contents.	Office
17. Determine the responsibility for continuous maintenance of project results.	Office, Leader, Founder
18. Present the final report on the project	Office

- |     |   |                     |
|-----|---|---------------------|
| 19. | Review the final report and conclude the project. | Council,<br>Founder |
|-----|---|---------------------|

### **5.3.2 Drafting of digitisation standards and instructions**

Good digitisation always implies specific standards and standardised procedures. At present their number appears to be quite large. They are often developed for the requirements of a specific major project while some are produced within authorised standardisation agencies.

Nevertheless, this does not necessarily mean that the question can be successfully resolved by the simple taking over of a standard or recommendation for a specific matter. Standards and recommendations are sometimes the outcome of a compromise between what is optimal in principle and what is considered appropriate or acceptable for a specific project or for the conditions in which it is implemented. Thus, there are different specifications for digitisation parameters and different recommended formats of data files for long-term preservation.

Due attention should also be paid to the time and context in which a standard or recommendation was produced. Something that was recommended five years ago may not be recommendable today.

Since Croatia has no formally accepted and recommended standards and procedures related to digitisation and digital collection management, the National Digitisation Project cannot rely on existing solutions. Accordingly, it must include activities for developing the necessary specifications.

However, the development of standards, recommendations and specifications need not be related to the National Project only. Their existence and application are important not only for specific projects, whatever their scope, but also for the overall activities focused on the digitisation of holdings, and the quality and exploitability of

digital collections, which will build and enrich over time the overall electronic supply of cultural contents. Moreover, the developed standards, recommendations and specifications need to be maintained and upgraded even after the end of the project so that they may remain relevant and applicable. Their development and maintenance should therefore be considered within the overall scope of the National Digitisation Project as well as in terms of a longer-term and broader system of digitisation support.

It is therefore recommended that a task force be set up within the National Digitisation Project which will be responsible for the development of standards and specifications, focused only on them without any regard to the content and conditions in which the project will be run, because that would tie them too much to the specific features of the project and unnecessarily limit the applicability of the developed standards.

The task group will draft the following necessary standards and instructions:

1. Criteria for the selection of material for digitisation
2. Instructions for the preparation of material for digitisation
3. Instructions or guidelines related to the legal aspects of digitisation
4. Planning and management of digitisation projects
5. Procedure and parameters for the preparation of digital records
6. Data file formats for storage
7. Instructions for the design of digital collections
8. Metadata model for digital collections and objects
9. Basic functional model of digital archives

The preparation of standards and recommendations should not be limited to the project itself, and the proposals, once completed, ought to be accessible to the professional public for discussion and expression of views and suggestions.

Wherever possible, maximum harmonisation should be attained with similar, and particularly more widespread international standards and recommendation.

The existence of guidelines is the prerequisite for successful work on specific projects within the scope of the National Project. Therefore a number of recommendations related to specific aspects of digitisation, based mainly on the material and experience acquired in foreign projects, are given in the annexes to this document. Regardless of that, the preparation of standards and recommendations should start as soon as possible, and its results must be visible and exploitable already in the early stages of the National Digitisation Project. Therefore, the task group for the preparation of standards and recommendations ought to be set up even before the project itself gets under way, especially if any project related decisions are delayed.

### **5.3.3 The project support system**

As one of the activities and products of the National Project, the support system should develop over time into a facility offering support to every entity which is engaged in the digitisation of holdings and which produces and supplies digital contents. For many this will be of major importance when they start considering more demanding digitisation projects.

The development of a system of monitoring and support ought to be one of the results of the National Digitisation Project. Considering the available and foreseeable professional resources in the field, their pooling and harmonisation will be necessary in order to build a high quality support system on which institutions will really be able to rely.

It seems appropriate and feasible that a reference centre for the digitisation of archival, library and museum holdings be set up within the scope of the proposed National Digitisation Project. When the project is completed, it can be retained as a programme associated with another project leader or as a cooperative programme

maintained by interested institutions because it would preserve the professional and coordination capacity developed by the Project Office.

In addition to supporting institutions and project, such a centre could also look after the acquisition and accessibility of information on projects and accessible digitised projects by keeping digital collection catalogues, maintaining a thematic portal and other similar activities.

The support system should also include the continuous targeted collection of information and documentation on similar projects and activities, including major foreign projects, information on the development of technology, standards and procedures, the drafting and maintenance of manuals, guidelines, instructions and similar materials.

One of the tasks of such a centre could be the continuous evaluation and monitoring of the quality of produced digital collections and their harmonisation with the adopted standards and policies.

#### **5.3.4 Digital archives**

If the production of digital collections of permanent value is expected, and that is the main goal of the National Digitisation Programme, long-term storage and good care of these collections ought to be provided for. This means that the producers of such collections must have access to high quality digital archives - whether by building and maintaining such a facility themselves, or by using the services of a cooperative digital archive or another external service supplier.

In the long run, it would be reasonable to develop the capacity of permanent preservation of digital collections within the system of cultural institutions rather than referring institutions primarily to the services of an external supplier though at present it may offer at present a better infrastructure and a more competent maintenance of information systems. One should always bear in mind that permanent

preservation is one of the fundamental tasks of institutions collecting and preserving material, and that the absence of capacity to adequately perform the same with digital holdings could have lasting consequences for the performance of the fundamental activity.

Because of this the National Digitisation Programme ought to develop and make accessible such a system both for the storage of digital collections which it will produce and as a model for the organisation of digital archives where they may be required considering the quantity and importance of digital collections in institutions.

Proceeding from some existing standards and good models the National Digitisation Project ought to produce a specification of the functional and information digital archive model, consider and evaluate the exploitability of the existing infrastructure in institutions involved in the project, and specify the project for such a system. As far as the project itself is concerned, the system must be functional up to the moment when individual participants are ready to deliver their digital collections.