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A TASK ANALYSIS OF THE CONTENT CREATORS OF A EUROPEAN DIGITAL LIBRARY

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ABSTRACT

A TASK ANALYSIS OF THE CONTENT CREATORS OF A EUROPEAN DIGITAL LIBRARY

By Kanokporn Nasomtrug

This study explores the tasks of the digital library (DL) content creators of a European DL, namely European NAvigator (ENA), developed by the Centre Virtuel de la Connaissance sur l'Europe (Virtual Resource Centre for Knowledge about Europe), CVCE, which is located in Luxembourg. The CVCE is in the process of enhancing the DL by creating a new DL management system, partly in response to the European Union's i2010 policy, as well as to newly emerging DL technologies and applications.

The following research questions were answered in this study:

- What are the current tasks of the DL content creators both directly and indirectly involving ECMD?
- According to the DL content creators, what are the outcomes achieved in performing their tasks?
- What recommendations are put forward by the DL content creators in regard to their tasks and activities?
- What functionalities or features should be incorporated into the future DL content management system for the content creators' tasks?

The study was supported by a literature review to provide background and foundation. The research methodology used was hierarchical task analysis (HTA). The data was collected through interviews, observation and screen recordings of tasks carried out by participants.

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Finally I need to mention that my thesis was based on literature obtained by drawing on electronic sources contained in databases of the University of Luxembourg, and on books kept by the National Library of Luxembourg.

DECLARATION AND PLAGIARISM DISCLAIMER

The opinions expressed in this thesis are solely those of the author and acceptance of the thesis as a contribution to the award of a degree cannot be regarded as constituting approval of all of its contents by the Division of Information & Communication Studies.

I certify that all material in this thesis which is not my own work has been identified and properly attributed to the best knowledge of the author.

Signed: Kanokporn Nasomtrug

Date: 15 August 2009

LIST OF ABBREVIATIONS

CVCE	Centre Virtuel de la Connaissance sur l'Europe (Virtual Resource Centre for Knowledge about Europe)
DELOS	DELOS Network of Excellence on Digital Libraries
DelosDLMS	DELOS Digital Library Management System
DL	Digital Library
DLMS	Digital Library Management System
DLs	Digital Libraries
DLS	Digital Library System
ECMD	ENA Content Management Database
ENA	European NAvigator
EU	European Union
HCI	Human-Computer Interaction
HTA	Hierarchical Task Analysis
ICT	Information and Communication Technologies
IT	Information Technology
MCE	Multimedia Content Explorer
MS	Microsoft
NIOSH	National Institute for Occupational Safety and Health
RDT	Recherche et Développement Technologique
RIA	Rich Interface Application
RTD	Research and Technological Development Department
TA	Task Analysis

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The purpose of this study is to investigate the tasks of content creators for a European digital library (DL), namely the online European NAVigator (ENA) knowledge database of the Centre Virtuel de la Connaissance sur l'Europe (Virtual Resource Centre for Knowledge about Europe), further referred to as CVCE.

The CVCE was established in 2002 in Luxembourg focusing on a wide range of disciplines to promote the history of a united Europe. György Schöplin (2008), a member of the European Parliament, explains the reason for promoting the history of a united Europe in the following words: “And how is Europe to deal with its two different histories, that of the West with its maturing democratic institutions and that of Central and South-Eastern Europe which had to undergo 45 years of communist dictatorship? If these two experiences are not brought into a single, broad European history, the European present becomes more difficult to understand, as Europeans will remain partial strangers to one another, making communication and cooperation significantly harder.”

The objective of the CVCE covers three main aspects, namely:

- “the research, gathering, selection, processing and dissemination of information on the European integration process;
- the promotion of cutting-edge technology and the establishment of a point of reference in the field of digital libraries;
- the exchange of information, experiences and resources for the benefit of European citizens and the world of education” (Centre Virtuel de la Connaissance sur l'Europe, 2009).

The main project of the CVCE is the development of the ENA knowledge base. ENA is the first digital library of its kind and contains carefully selected online resources documenting European history from 1945 to the present day (further discussed under 1.2). The CVCE is also working towards creating the digital infrastructure for tomorrow's information society. The latter is closely connected to the European Commission's i2010 initiative.

1.2 THE EUROPEAN COMMISSION'S i2010 INITIATIVE AND THE CVCE

The European Commission is one of several institutions of the European Union (EU), an international organisation composed of 27 European countries known as Member States and governing “common economic, social, and security policies” (Encyclopaedia Britannica, 2009). In March 2000, the European Council agreed that by 2010 Europe should be “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (European Parliament, 2000). This agreement is known as the Lisbon Strategy, also called the Lisbon Agenda or Lisbon Process.

Building on the Lisbon Strategy and specifically as a result of fundamental changes in technology, the European Council proposed a new strategic framework called “i2010 – A European Information Society for growth and employment”, an initiative with three focus areas, namely to provide policy guidelines to create a single European information space; to support ICT research investment as a major economic driver; and to extend the European values of inclusion and quality of life to the entire information society (European Commission, Information Society and Media DG, 2008). The i2010 strategy combines all EU policies, initiatives and actions aimed at boosting the development and use of digital technologies, also called information and communication technologies (ICT), in everyday life, including the working environment and private lives of individuals in the European Union.

Included among the i2010 policy guidelines for the European information society in the years up to 2010 is the digital libraries initiative. This project aims to provide easy public access to European information assets, including European multicultural and multilingual heritage, by applying modern technologies and business models. The digital libraries initiative has three main criteria, namely online accessibility, digitisation of analogue collections, and preservation and storage (Commission of the European Communities, 2005). The libraries, museums and other information institutions in Europe, including the CVCE, have been eagerly responding to this initiative.

To understand the CVCE's efforts to align itself with the i2010 strategy, it is necessary to describe ENA in more detail. ENA can be described as “a thematic digital library on the history of European integration” (Brangier, Dinet, & Eilrich, 2008) which aims to provide comprehensive, easily accessible online information concerning Europe's heritage for European citizens. According to the

CVCE (2009), ENA is a “guardian of Europe’s heritage” and is “aimed at students, teachers, researchers and all those interested in European issues.”

ENA is a unique digital library in terms of its complex integrated approaches to gathering its multilingual information resources (currently over 15000 items) through the cooperation of several European partners and the CVCE’s own research and development efforts. The information resources include items such as photos, treaties, film recordings and press articles. The first online version of ENA was launched in 2002 via the internet after prototypes in CD format. The main steps in the development of ENA’s content are the gathering of information in regard to European history, the processing and integration of these resources into ENA, and the exploitation of the information. In addition to the steps mentioned above, Backes (2006) also adds quality control and network cooperation as important aspects of ENA’s development.

Since ENA has been launched on the internet, it has become recognised as a leader on European historical information by many organisations in Luxembourg and nearby countries. To at least keep this position and to work towards a more prominent role in the European Union and globally, the future development of ENA needs to encompass new digital technologies. This will not be possible without the CVCE aligning itself to the i2010 strategy, as well as embracing the Delos Digital Library Management System (DelosDLMS). DELOS is a network of excellence on digital libraries and DelosDLMS’ main goal is to provide a prototype of a next-generation digital library management system (Schek & Schuldt, 2006). DelosDLMS will be further discussed in chapter 2.

The CVCE team continuously tries to find the best ways to improve ENA by inter alia seeking feedback from its users. Feedback has been secured through several surveys which have been conducted over the past few years. The online survey of 2005 was carried out by the CVCE’s Department of Communication and focused on usage of ENA in general (Centre Virtuel de la Connaissance sur l’Europe (CVCE), 2005).

One survey in particular took place in 2008 as a combined study between the CVCE and researchers from the University of Metz in France. It was an in-depth study determining users’ attitudes toward using ENA via a focus group interview approach. The users were selected from the major user groups of ENA, which include researchers, information scientists, journalists, historians, teachers, students, efficiency experts, politicians, computer engineers, etc. The study findings were analysed

according to seven functions, known as the seven 'A' functions of digital libraries: Archive resources, Accredite the information, Actualise knowledge, Analyse the data, Affirm an identity, Associate, and Animate (Brangier et al., 2008). These seven functions provide a basic understanding of the future development criteria in terms of both the ENA content required and its users' participation.

The above-mentioned studies focused on the end-users of a digital library. In other words, they researched the digital library's users who interact with the digital library's information interface. It is necessary to define the different types of end-users to provide the context for the present study.

1.3 END-USERS OF A DIGITAL LIBRARY

A digital library (DL) provides DL services in real time and cannot exist without users, because it is built in order to serve its community. Over time the definition of a library user has expanded so that today it does not only include the physical community of users, but the virtual community as well. The term end-user may refer to an individual user, several users, a community or even a global community in this digital age. This study focuses on digital library users accessing digital library services via the internet rather than visiting a physical library in person.

According to the DelosDLMS (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007) there are various types of users, referred to as actors, namely digital library (DL) end-users, DL designers, DL system administrators, and DL application developers. The DL end-users are divided into content creators, content consumers and librarians. These latter three are simply known as content producers and consumers, with the same people often playing both roles.

Figure 1.1 on page 6, entitled "Intelligent multimedia ecosystem for the digital information age", was created by Le Brun and Sillaume (2007) and explains in visual form the role of content producers and consumers in a DL. This figure presents the close interaction between DL end-users and the content producers and creators in today's digital information age. The previous passive role library users played in the creation and development of library services is now something of the past. Current DL end-users play a vital role in future developments of DLs and their input and feedback in regard to DL requirements are not to be ignored. Sidestepping the opinions and

perceptions of DL end-users might end a DL's positive rating as a user-friendly and current institution serving the needs of its users.

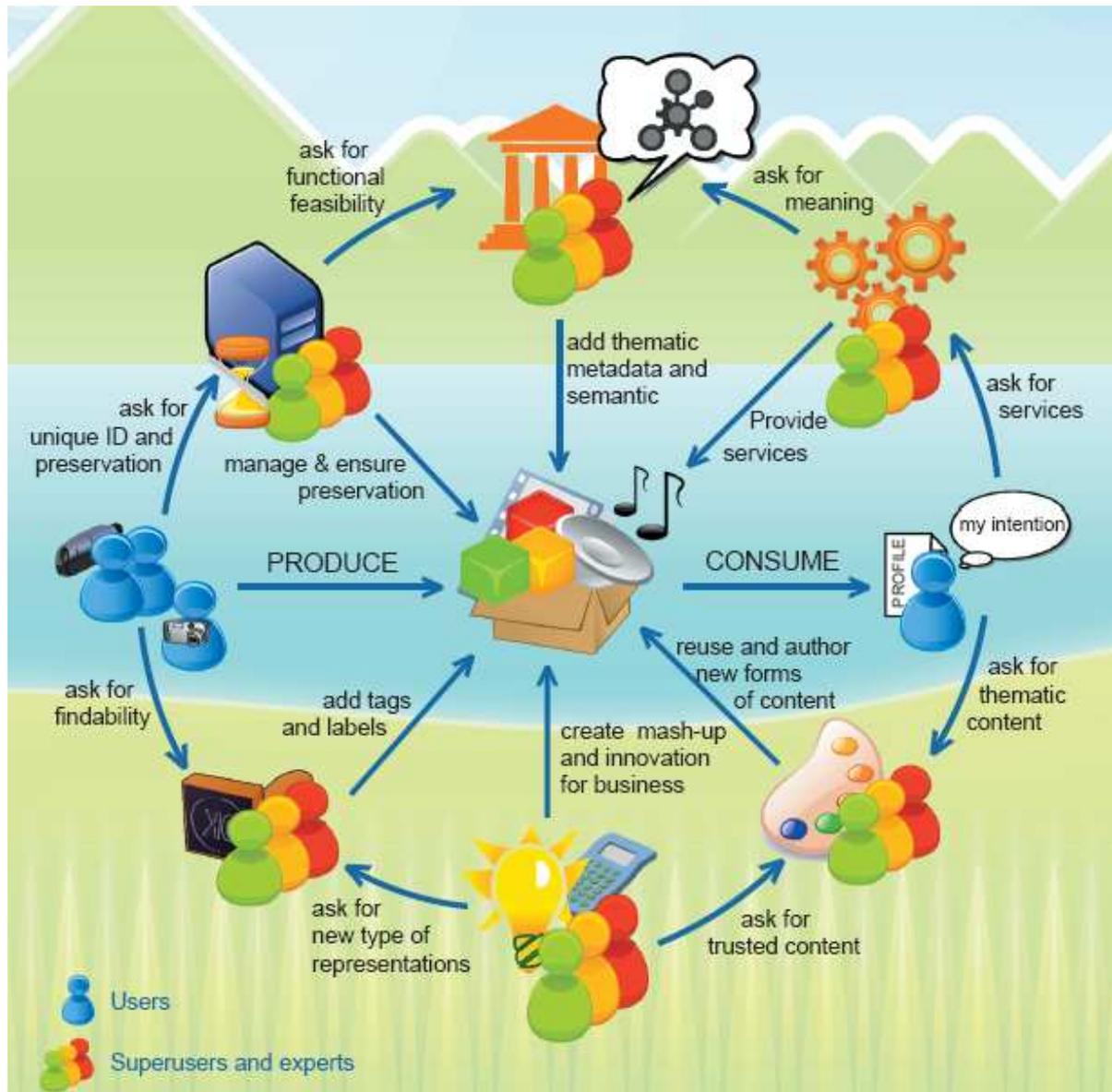
The viewpoints of DELOS and the models of Le Brun and Sillaume can be linked to the nature of the CVCE's users, who consist of two main user groups, namely users who consume the DL's information, known as front-end users, and those who create the content of the DL, known as back-end users. The latter are also the experts of the different DL fields of this particular library.

The CVCE's digital content creators have special qualifications which are quite different from other digital libraries' content creators, who mostly tend to provide existing information through their digital libraries. The CVCE content creators, on the other hand, consist of:

- researchers with extensive knowledge about European history and events;
- translators responsible for translating documents into European languages such as French, English, German, Dutch and Italian;
- legal advisers, who collaborate with the researchers regarding intellectual rights to publish the documents;
- the graphic designer, who designs animated documents;
- the audio-visual engineers, who process the multimedia documents before they can be embedded into the digital library; and
- other supportive partners such as the IT specialists and the study group, whose work is to find the best methods to improve the digital library in the long term.

FIGURE 1.1

INTELLIGENT MULTIMEDIA ECOSYSTEM FOR THE DIGITAL INFORMATION AGE



1.4 PROBLEM STATEMENT

The surveys conducted by the CVCE since 2005 and already described in 1.2 of this study were aimed at the front-end users of ENA. In order to align ENA to the European Commission’s i2010 strategy, as well as for the development of the new integrated content creation system envisioned by the CVCE (further discussed in chapter 2), it will be crucial to also investigate the opinions and/or perceptions of the DL content creators as back-end users in regard to their tasks relating to the development of the DL.

Whereas the aforementioned studies focus on the needs of the front-end users, the literature reveals that there has only been one study completed by Eilrich (2008) focusing on the needs of the back-end users. In his study, Eilrich investigates 22 CVCE staff members' use of the ENA Content Management Database (ECMD). These include the Heads of Department as well as the Director of the CVCE. Eilrich's study provides some understanding of these members' responsibilities in general. For instance, an example of his study findings is that the Director leads the CVCE; oversees the organisation's strategies, management, teamwork and strategic guidelines; and maintains relations amongst the CVCE departments and with the stakeholders. One of the research participants, who is responsible for the Recherche et Développement Technologique department (Research and Technological Development, referred to as RTD), called for better development of ECMD's services and features to reduce the technical problem areas and serve the users better. Although the study brought up interesting points, there is still insufficient information on how these CVCE members are performing their tasks in order to achieve their goals.

This study will conduct further investigation into the tasks of ENA's content creators to enhance understanding of their needs vis-à-vis the ECMD tool, which is currently used for creating information on ENA.

Against this background the main problem of this study can be stated as follows: to analyse the tasks of the DL content creators in regard to a European DL.

The relevant sub-problems can be defined as the following research questions:

- What are the current tasks of the DL content creators both directly and indirectly involving ECMD?
- According to the DL content creators, what are the outcomes achieved in performing their tasks?
- What recommendations are put forward by the DL content creators in regard to their tasks and activities?
- What functionalities or features should be incorporated into the future DL content management system for the content creators' tasks?

1.5 RESEARCH METHOD

For this study, a task analysis (TA) approach has been selected as the research method. The TA method supports a number of specific research techniques to help the researcher collect and organise data. This data format facilitates the making of research judgments and/or design decisions (Kirwan & Ainsworth, 1992, p. 1).

There are several TA techniques; hierarchical task analysis (HTA) was selected for this study because the end-product of this hierarchical decomposition of a task shows clearly the subtasks as well as the link(s) between various subtasks.

The following steps were taken to conduct the TA (see table 1.1):

TABLE 1.1
THE STEPS IN THE HTA

Steps in research	Activities
Step 1 Literature study	Background information was studied in regard to: <ul style="list-style-type: none">• Task analysis studies in libraries with specific focus on DL content creators• Task analysis in general and HTA specifically since its introduction in 1967• The history, current organisation and objectives of the CVCE, including any evaluative studies of ENA
Step 2 Selection of target group	The target group: <ul style="list-style-type: none">• Comprises eight CVCE members including five researchers, two translators and one legal adviser• Was selected based on advice from CVCE members

<p>Step 3 Data collection</p>	<ul style="list-style-type: none"> • Develop a questionnaire to use as a guideline for interviews • Install software called Camtasia Studio to record the interview participants' computer screens as well as their voices
<p>Step 4 Data analysis</p>	<ul style="list-style-type: none"> • Review the screen recordings and take notes of the steps of tasks • Draw up a diagram for each task using software called Inspiration • Analyse and interpret the findings in the form of a table
<p>Step 5 Document research study</p>	<ul style="list-style-type: none"> • Write up research findings • Make conclusions and recommendations

1.6 TERMINOLOGY

Digital library (DL)

There is no universally accepted definition for the term 'digital library' at this stage. Some authors define digital libraries as focused collections of digital objects such as video clips, photos, graphs, as well as the methods for the selection, organisation, maintenance, accessing and retrieval of these digital objects (Witten & Bainbridge, 2003, p. xxvi).

For this study a DL can also be described as systems that are composed of diverse parts and yield a highly diversified functionality. These systems include digital objects, "metadata repositories, reference-linking systems, archives, and content administration systems (mainly developed by industry) [and] complex systems that integrate advanced digital library services (mainly developed in research environments)" (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 13).

Digital Library Management System (DLMS)

To define a DLMS the definition of Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., (2007, p. 17) will be used: "A generic software system that provides the appropriate software

infrastructure both (i) to produce and administer a Digital Library System incorporating the suite of functionality considered fundamental for Digital Libraries and (ii) to integrate additional software offering more refined, specialised or advanced functionality.”

Virtual community

The term “virtual community” is also referred to as online community or e-community. This consists of a group of individuals who interact through a variety of electronic communication media, such as email and e-newsletters, as well as instant messages. People in the virtual community might have met face-to-face or not at all. “Many means are used in social software separately or in combination, including text-based chatrooms and forums that use voice, video text or avatars. Significant socio-technical change may have resulted from the proliferation of such Internet-based social networks” (Wikipedia, 2009).

1.7 CHAPTER DIVISION

In this study the chapters are presented as follows:

- Chapter 1 - Introduction
- Chapter 2 - The DL content creators in context
- Chapter 3 - Research methodology
- Chapter 4 - Research data
- Chapter 5 - Conclusions and recommendations

1.8 SUMMARY

Focusing on the ENA project of the CVCE, this study endeavours to investigate the tasks of the DL content creators. The investigation is exploratory and descriptive in nature, although various research techniques, such as interviews and a survey, are employed.

This study tries to increase the available knowledge in regard to the creation and continuous development of a European DL in general, and more specifically the tasks of DL content creators.

To understand the context of the DL content creator, the next chapter offers an overview of the current DL environment.

CHAPTER 2

THE DL CONTENT CREATORS IN CONTEXT

2.1 INTRODUCTION

Over the past 10 years (3 years as a workgroup, 3 years as a Thematic Network and 4 years as a Network of Excellence), an organisation known as DELOS Network of Excellence on Digital Libraries (further referred to as DELOS) and partly funded by the European Commission has played a major role in establishing a research community on digital libraries in Europe. The CVCE is a partner of DELOS (DELOS, 2009), and due to this partnership, the CVCE's digital library (ENA) is aligned to the DELOS Digital Library Manifesto. This manifesto constituted a springboard for further research into a DLMS reference model that resulted in The DELOS Digital Library Reference Model (version 0.98) (Candela, Castelli, Ferro, Loannidis, Koutrika, Meghini, et al. (2007, p. 16). Therefore, to understand the context of the DL content creator, the CVCE, it is necessary to briefly explain the DELOS Digital Library Manifesto, and specifically the views on content, users and functionality contained therein.

The term "context" can be understood at many levels, but where the DL content creators of the CVCE are concerned, it will also refer to the position of a DL content creator in the CVCE's structure and his or her tasks as content creator related to ENA. Although the DL content creators' responsibilities focus on the creation of the content of ENA, they are simultaneously active users (back-end users) of their own DL, namely ENA. This aspect of their work environment will also be covered in this chapter.

2.2 DELOS DIGITAL LIBRARY MODEL

It has been said that the DL discipline is fairly young compared to other disciplines. Over the past 15 years, stakeholders have sought by means of several research projects to develop an appropriate definition of a DL and describe the functions of a DL.

As one of the above-mentioned stakeholders, DELOS conducts a joint programme of activities, subsumed under its Information Society Technologies Programme (IST), mainly with a view to integrating and coordinating the current research efforts of European research teams working in DL-related environments. The main goal of DELOS (2009) is "to develop the next generation of Digital

Library technologies, based on sound comprehensive theories and frameworks for the life-cycle of Digital Library information.”

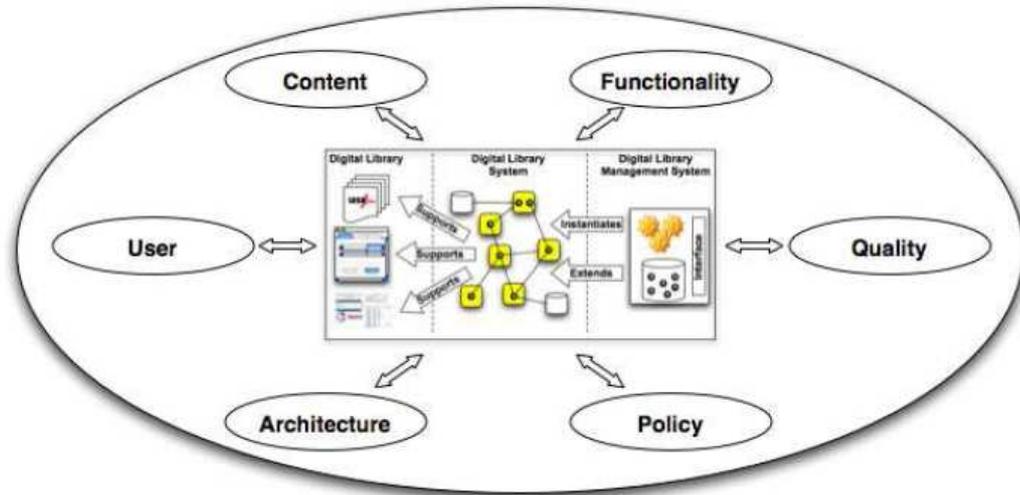
DELOS published The Digital Library Manifesto in 2006, encapsulating all potentially viable research perspectives on digital libraries in Europe and further afield, thus establishing a platform from which to facilitate the integration of DL research and promote the development of appropriate DL systems (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 16).

This manifesto introduces the digital libraries universe, a three-tier framework consisting of the DL itself, the digital library system (DLS) and the digital library management system (DLMS). A DL and a DLMS are described under 1.6 in chapter 1. The remaining term in the three-tier framework, a DLS, DELOS defined as a software system which is “based on a (potentially distributed) architecture and provides all functionality that is required by a particular Digital Library” (Candela, Castelli, Ioannidis, Koutrika, Pagano, Ross, et al., 2006, p. 8).

To develop DL systems in the past, specialised methodologies and techniques borrowed from a wide variety of disciplines were used. This pragmatic approach resulted in “a plethora of heterogeneous entities and systems”, commonly referred to as “digital library systems” (Candela, Castelli, & Pagano, 2006). This phenomenon, as well as the fact that DLs change constantly as ICT evolves, causes extreme difficulties for future DLS developments in the light of current DLS applications not usable in the future.

The six main concepts of the digital libraries universe represented in figure 2.1 below are content, user, functionality, quality, policy and architecture (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 19).

FIGURE 2.1
THE DL UNIVERSE: MAIN CONCEPTS



Source: Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 19

Of these six core concepts, only content, user and functionality are of immediate concern to this study. These will be briefly outlined below.

2.2.1 Content

The DL content creators are responsible for the creation of the content of a DL. As mentioned earlier, the content includes all data and information held by the DL, ranging from electronic text to video clips. The content is selected and gathered in focused collections made available to users.

2.2.2 User

The user concept refers to the actors (any entity, human or not) allowed to access and interact with the DL. The relationship between the DL and the user is that the former acts as the information medium and supports the latter when they need to consume information from and/or create new information for the digital library (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 19-20).

The user domain “represents all the entities that are external to a Digital Library ‘system’ and interact with it, that is: humans, and inanimate entities such as software programs or physical instruments” (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 39). Therefore,

in order to represent the concept of “user” in its wider context, the term has been replaced by the word “actor” in the DELOS Digital Library Reference Model. According to the explanation provided, a user (or an actor) can have different “roles” depending on circumstances. The actor roles have been divided into the following categories: “End-user, DL Designer, DL System Administrator, and DL Application Developer” (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 40).

The end-user, who is particularly relevant to the context of this study, subsumes the content creator, the content consumer and the librarian (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 40). The term “content consumer” describes “the Role of the Actors that access the Digital Library for the purpose of consuming its Resources, usually Information Objects, through the available Functions” (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 88). In other words, an individual who searches (uses the search function of a DL) to access DL content or an external subscription service receiving DL content are examples of content consumers.

The DL content creator, the actor providing new and/or updated DL information to be stored in the DL, may also be human or non-human. For example, the DL content creator may be a person creating new documents for a DL collection or an external program that automatically converts artefacts to digital format and uploads them to the DL (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 88-89).

According to The DELOS Reference Model for Digital Libraries (Candela, Castelli, Ferro, Ioannidis, Koutrika, Meghini, et al., 2007, p. 89), the librarian, the actor managing the DL resources (including information objects and end-users), is the curator of the DL content.

2.2.3 Functionality

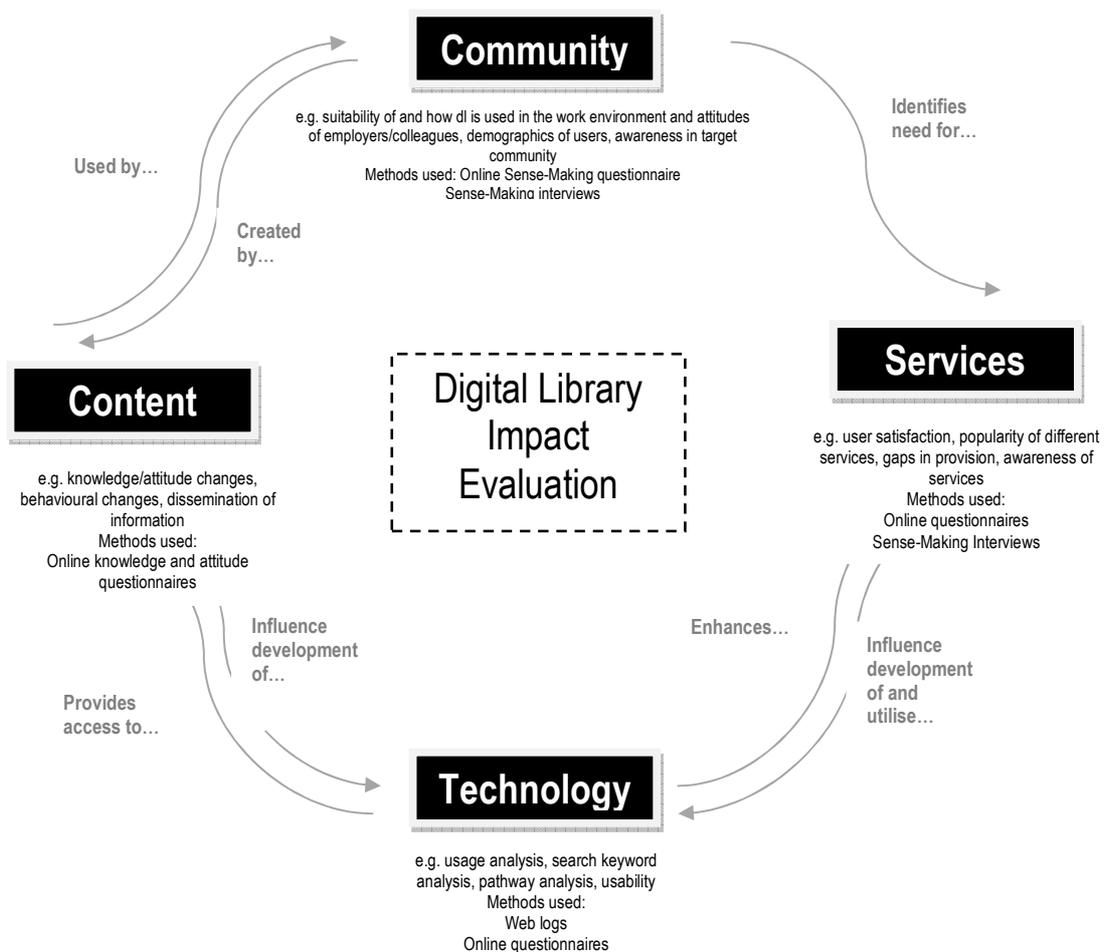
The notion of functionality in the DL universe refers to the services of a DL offered to individual users or groups. The minimum range of services expected from a European DL should include new object registration and search and browse functions.

Candela, Castelli, Ioannidis, Koutrika, Pagano, Ross, et al. (2006, p. 11) also mention that, “depending on the particular needs of its community of users and/or the information it is aimed to manage”, the specific DL may offer a variety of additional functionalities to serve its users.

There is a strong link between the users (individuals, groups and other actors interacting with the DL) and the services or functionality a DL provides (the content consumed by the users). Figure 2.2 below clearly shows the relationship between these two parties within the DL ecology. Each of the four aspects shown in this figure, namely community, content, services and technology, need to be included when the impact of a DL is evaluated.

The DL content creator as seen in the CVCE will be discussed in 2.3 against this context established by DELOS.

FIGURE 2.2
THE RELATIONSHIP BETWEEN COMMUNITY, CONTENT, SERVICES AND TECHNOLOGY



Source: Madle, Kostkova, & Roudsari (2008)

2.3 THE CVCE EMPLOYEES AS DL CONTENT CREATORS

The employees of the CVCE, a Luxembourg-based public institution, are specialists from multidisciplinary fields. Each staff member provides skills in order to achieve the same aim – to promote and distribute information about Europe through various activities such as research, information gathering, selecting, organising, creating, digitising, formatting, translating, subtitling, copyright managing, metadata integrating, and multimedia managing (CVCE, 2009). The end-product of their work-related activities provides high-quality, user-orientated DL services and functionalities.

At the time of this study (March to June 2009), thirty-six permanent staff members, as well as a varying number of temporary and freelance employees, were deployed in the eleven units of the CVCE. The units are:

- Direction (Management)
- Comité de Coordination (Coordinating Committee)
- Unité Recherche et Coopération Scientifique (Academic Research and Cooperation Unit)
- Service Traduction (Translation Department)
- Service Documentation (Documentation Department)
- Service Développement et Production IT (IT Development and Production Department)
- Service Informatique (IT Department)
- Service Administration (Administration Department)
- Service Affaires Juridiques (Legal Affairs Department)
- Service Communication (Communication Department)
- Groupe d'études (Study Group) (CVCE intranet, 2009).

The DL content creators are mainly deployed in the “Unité Recherche et Coopération Scientifique”, part of the Research and Content Development Section. This section comprises a range of specialists from various disciplines such as history, law, journalism, political sciences, librarianship and translation. According to the CVCE annual report of 2004 (CVCE, 2004, p. 25), those involved in producing the ENA DL represent a total of 15 different professions, including researchers, IT specialists, a graphic designer, intellectual property experts, etc.

The Research and Technological Development Section, including the IT Development and Production Department and the IT Department, plays an important role in supporting the DL content

management and distribution, especially the multimedia content in terms of the development of software solutions. The activities of this section are especially crucial for developing a technical platform for ENA (CVCE, 2009).

The DL content creators mainly have to create DL content, but the mandate includes active use of their own DL as back-end users.

2.4 THE CVCE USER CONCEPT

The CVCE's user concept is in line with the DELOS Digital Library Reference Model (version 0.98). According to the CVCE there are two main users of ENA:

- **Internal users** are the DL content creators, playing significant roles in creating, updating and maintaining digital information on ENA. They can also be called **back-end users**.
- **External users** are the content consumers or the **front-end users**, the target of ENA. They include teachers, students, researchers, historians, and so on.

To deliver a more effective service, the CVCE generates feedback from its external users, the DL content consumers, through surveys. As noted in chapter 1, this feedback, as well as communication opened up through Web 2.0, helps the DL content creators to receive input from external users in regard to the current functionality of ENA. This is also a way external users can make known their DL needs and requirements to the DL content creators.

2.5 THE CVCE THEMATIC DIGITAL LIBRARY

ENA is the CVCE's thematic digital library and is at the heart of the organisation's activities. ENA was the first digital library on the history of the European integration process. According to the information presented on the CVCE website (www.cvce.lu), ENA was first developed as a project in 1996. In 1998, it became a prototype on CD-ROM before being established on a website two years later and gradually developing its first online version since then. The project phase in 2003 offered ENA's users two versions, respectively known as ENAacademic and ENAfree. The former version was given to various institutions and universities to be installed for their internal users, or was

installed as an interactive terminal. The latter was accessible online, although it was incapable of providing full features and applications (CVCE, 2004, p. 17). The following year, 2004, another milestone was reached in the development of ENA when an official new online version of ENA was launched publicly. This year was also marked by the visit of His Royal Highness (HRH) the Grand Duke of Luxembourg to the CVCE.

Since 2004, ENA has undergone continuous development due to research supporting the creation of appropriate DL policies and technological changes to ENA. For example, in 2005, more features such as the Album module, the quality control icon, the print function, a new format for film recordings, and the presentation of tables, passports and facsimiles were added to ENA to satisfy front-end user needs. At the same time, DL content development was increased (CVCE, 2005, p. 27). The exceptional hard work of the CVCE team resulted in the release of ENA2 in 2006. This new version of ENA was more dynamic, containing an increased volume of documents and interactive content. For example, the new module called ENA & Education presented opportunities to front-end users in education to share their ideas and suggestions with colleagues (CVCE, 2006, p. 5). See also <http://www.cvce.lu/obj/download/fr/Fevrier%202006%20No%2018.pdf>.

Development of ENA continued and in 2008 the CVCE declared that a new version of ENA would be launched in 2010 in line with the i2010 digital library initiative of the European Commission. The new version of ENA would incorporate technologies such as Web 2.0 (CVCE, 2006, p. 3).

2.5.1 Content of ENA

ENA includes information about European history from multiple sources and presents the information in several formats (text, video clip, sound clip, synopsis, press article, treaty, letter, expert contribution, interactive map, interactive diagram, photo, cartoon, facsimile, passport, table of text, table of figures, etc.) and in multiple languages (French, English, Spanish, German, Dutch, Portuguese, Italian, etc). All the digital documents are protected by copyright.

As noted in chapter 1, ENA focuses on European history, especially from 1945 to the present day. The DL content also includes sectoral, ideological, geographical and linguistic aspects of European history and current events (CVCE, 2009). The information available on ENA is presented under six main headings (see figure 2.3):

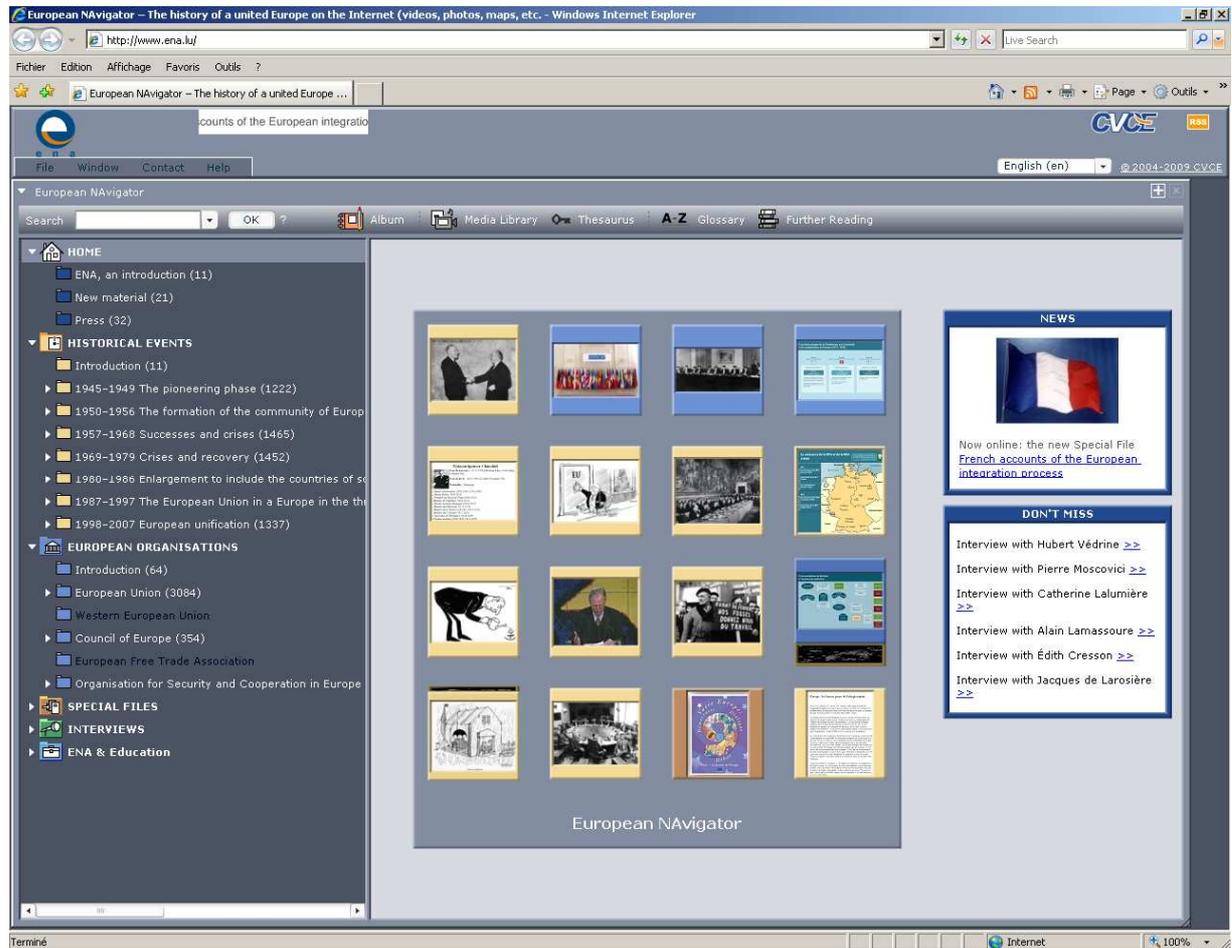
- Home (provides an introduction to ENA, new material and press material);

- Historical events (comprises material on landmark European events dating from 1945 to the present);
- European organisations (provides information about several organisations in Europe);
- Special files (created jointly with the CVCE's partners for specific research areas);
- Interviews (highlights people involved in historical events within the European context); and
- ENA & Education (provides useful material for teaching and learning on selected European themes).

Other useful applications on ENA:

- Album (displays the albums produced by the ENA team and allows ENA users to produce, manage and share their own albums);
- Media library (presents the material according to media format as mentioned in the first paragraph under 2.5.1)
- Thesaurus (presents documents used in ENA according to various subject headings);
- Glossary; and
- Further reading (provides a list of themes, each containing a bibliography of relevant documents).

FIGURE 2.3
THE EUROPEAN NAVigator (ENA) HOMEPAGE



Source: <http://www.ena.lu/> (2009)

All categories and applications are constantly undergoing further development. The material is carefully selected from historical and current sources. The editorial process ensures that the material and information objects reflect the true nature of the historical European issue or event. Many new documents added to ENA were previously difficult to access, unusual in nature, and/or unpublished. Material is selected for its relevance or if it can bring particular added value to a subject. For example, the European Organisation's section contains a wide range of information about the European institutions from a historical and legal viewpoint.

The creation of synopses and interactive documents such as maps, diagrams and tables was incorporated into ENA to support its intended educational function. Documents are either presented

in their original format and/or as excerpts from long documents. Relevant documents have been translated by the CVCE's Translation Department.

2.5.2 ENA CONTENT MANAGEMENT DATABASE (ECMD)

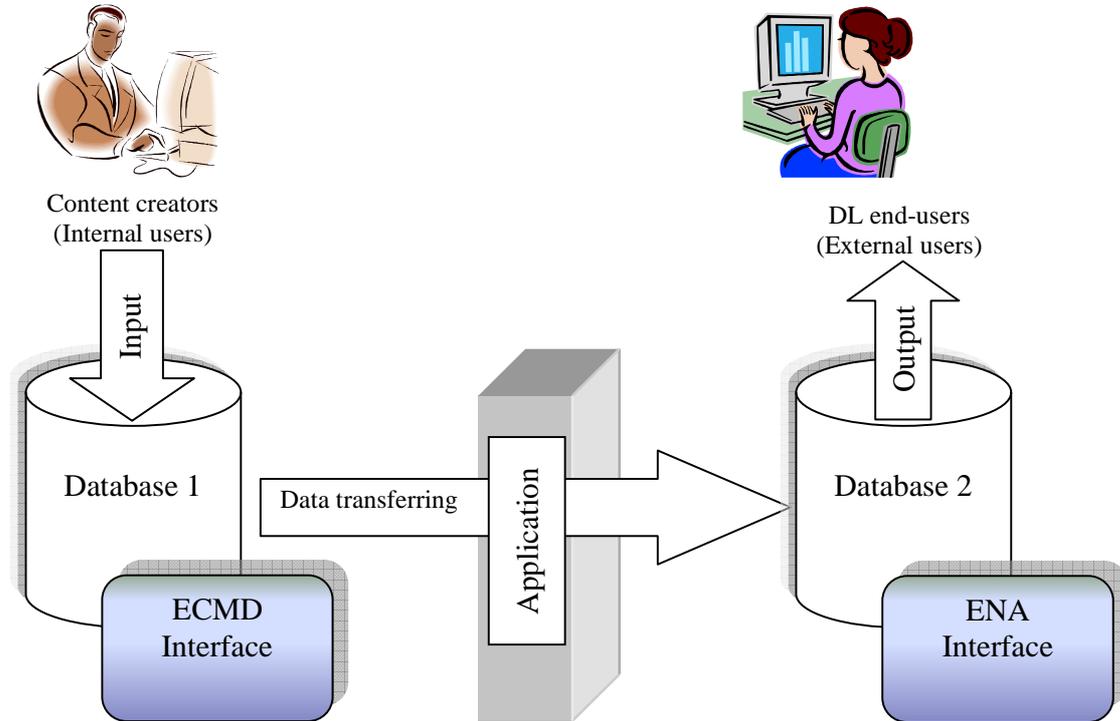
The ENA Content Management Database (ECMD) was developed by the Research and Technological Development Department (RTD) on a main content management platform known as Multimedia Content Explorer (MCE) for the full online version of ENA which was established in 2004.

ECMD provides effective ways to achieve varied and interactive content dissemination for academic purposes on the internet. Its online applications add value to the multimedia and multilingual materials in particular. ENA was claimed to be one of just a few web-based applications that feature a Rich Interface Application (RIA). The basic platform chosen for MCE is Flash MX, which is a useful tool to support the dissemination of interactive content such as text, photos, maps, diagrams, cartoons and audio and video streams. Since 2004, MCE has undergone constant development. Many features have been added to satisfy the needs of ENA users. The ENA search engine is based on Eurovoc thesaurus, a new version of which was introduced in 2004 (CVCE, 2004).

The following information about ECMD was obtained from discussions with a key developer charged with the development of ECMD from before ENA was first launched on the internet (D. Jacquet, personal communication, June 26, 2009).

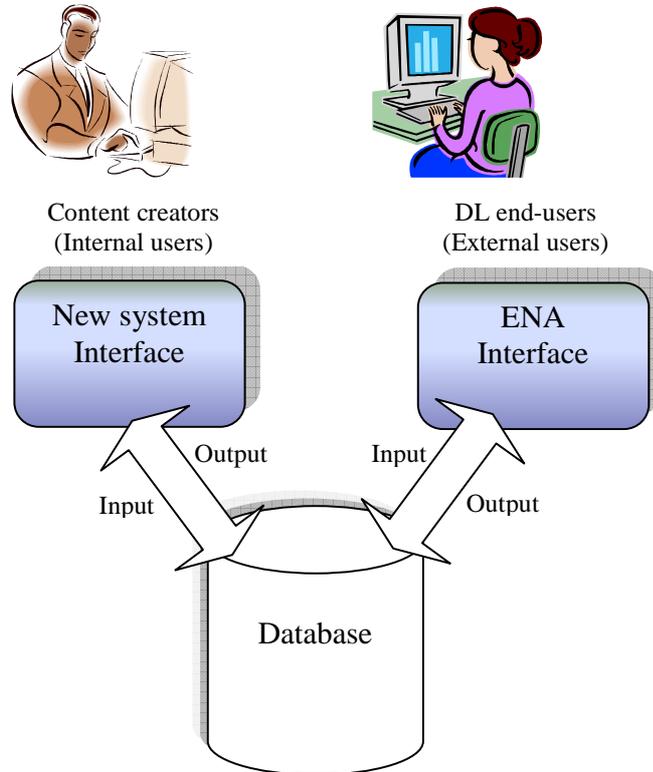
Two databases with different interfaces are combined by the system structure of ECMD (see figure 2.4). Database 1 contains all the information incorporated into ECMD via the ECMD interface. Database 2 receives publishable information for ENA. Since not all created documents are uploaded into ENA because of the copyright process or a mounting workload that cannot be completed within the timeframe, the created documents are stored in Database 1 and only the documents with status "Disponibile" (meaning available) are transferred to Database 2. This transfer process takes place on a weekly basis, which means that information on ENA is updated every week as well.

FIGURE 2.4
CURRENT ECMD SYSTEM MODEL



The CVCE is redeveloping ECMD to bring it in line with the latest trends in DL technology. The figure below represents mooted ideas for the projected new ECMD.

FIGURE 2.5
 FUTURE ECMD MODEL FOR THE CVCE

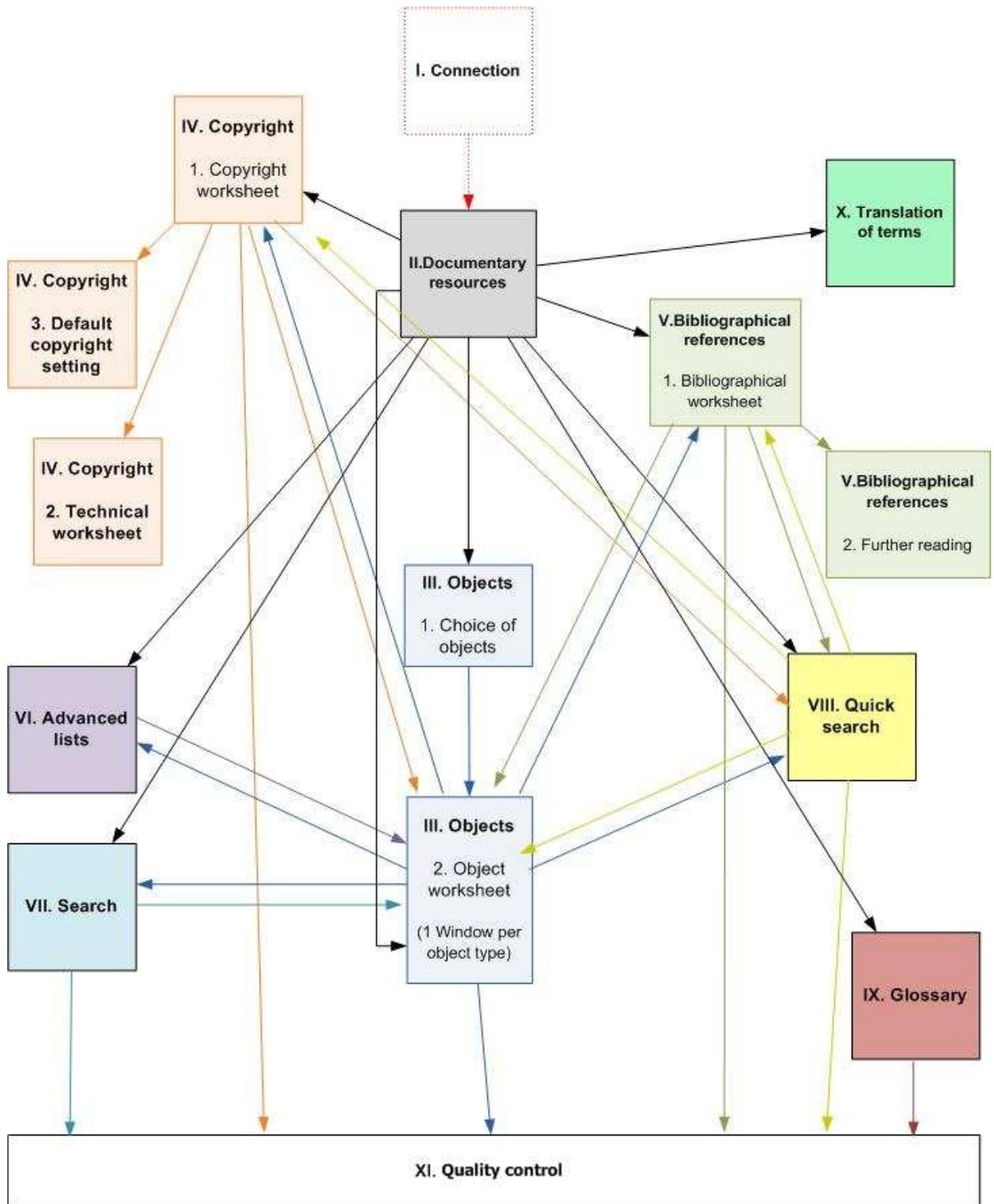


The new ECMD will have only one main database, where all users of this DL can contribute their information into the system. However, besides the filtering system installed on the internal users' side to allow only appropriate information to be published on the DL, there will also be mechanisms to prevent the chaos that could ensue from the diversity of sources of information.

The current ECMD functionality is divided into windows. This system of windows is shown in figures 2.6 and 2.7. Both diagrams are the same, yet different in perspective. A short description of each of the windows follows:

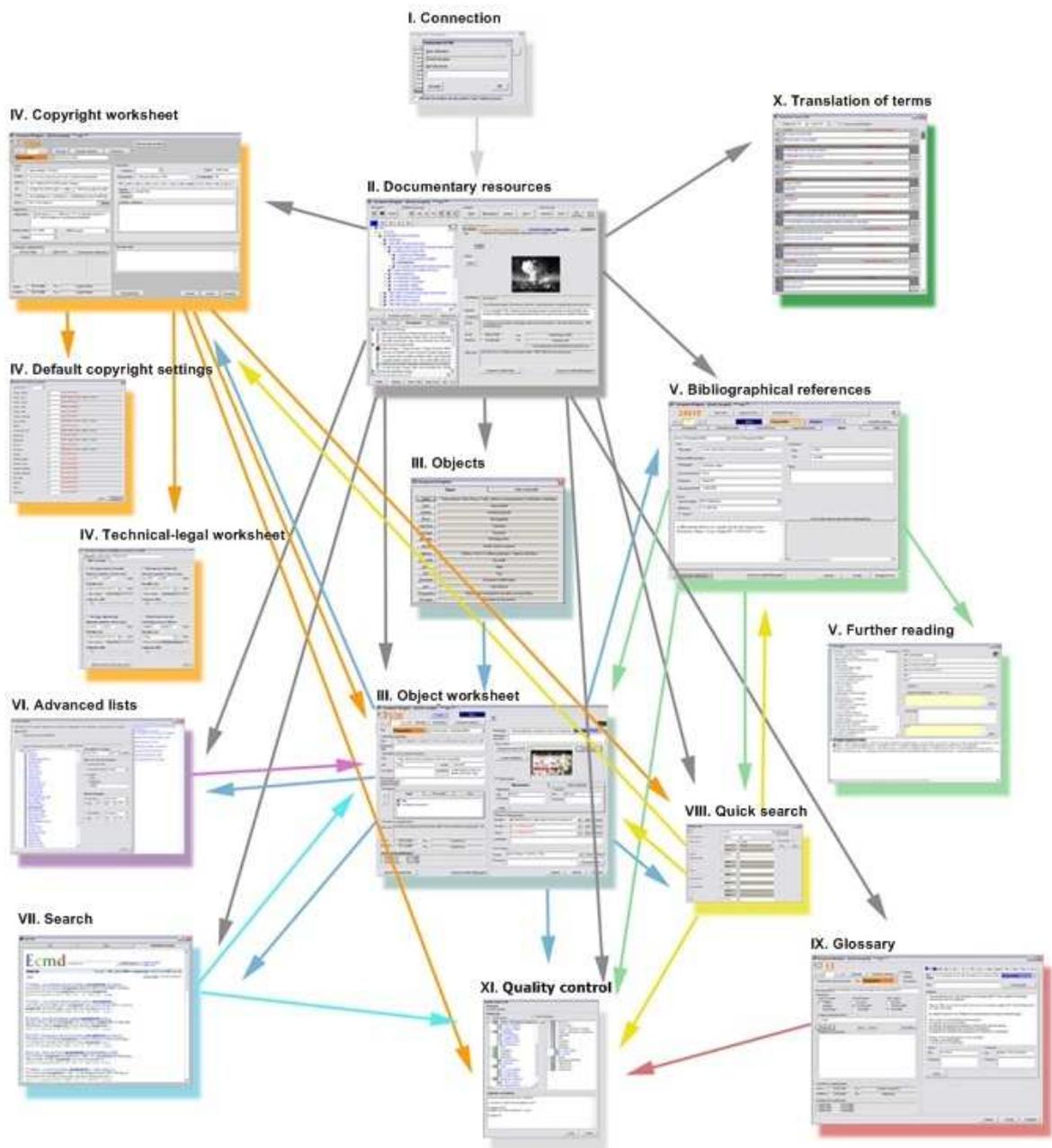
FIGURE 2.6

THE ECMD WINDOWS: A LOGIC DIAGRAM



Source: Jacquet, 2008

FIGURE 2.7
THE ECMD WINDOWS: A THUMBNAIL DIAGRAM



Source: Jacquet, 2008

i. Connection

After a user connects to ECMD from his or her computer (which must be located at the CVCE), a connecting window appears requiring a user name and password to enable access to the system. Rules governing access vary depending on the responsibilities of the person concerned, meaning they are only allowed to modify within the confines of their specific job descriptions.

ii. Documentary resources

This window shows the tree structure of the DL, which allows the content creators to browse through the topics, search for specific documents, and manage the resources during the management processes.

The left-hand side of this window shows the tree structure (see above) while details about a specific document selected from the left-hand menu appear on the right-hand side.

iii. Objects

A list of the different object types is presented in this window. An object type can be selected to access further processes such as searching, creating and updating documents for that particular object type.

Object worksheet

This window appears after an object has been selected. The content creators carry out their work on a document in this worksheet.

iv. Copyright worksheet

The copyright worksheet is where the legal advisers insert information about a specific copyright holder.

Default copyright settings

This worksheet is operated by the senior legal adviser to set the default value for various object types.

Technical-legal worksheet

This worksheet is used for setting specific information about a document, which will depend on the publishing terms agreed between the copyright holder and the CVCE.

v. Bibliographical references

This worksheet is completed by a researcher who creates a document. It contains the bibliographical details for that document.

Further reading

This section is where the content creators give further bibliographical information to the ENA end-users based on relevant subjects provided on ENA.

vi. Advanced lists

When the content creators want to seek specific information based on their own areas of interest they will use this functionality and select the information that they wish to be displayed.

vii. Search

The search function helps the content creators to find information based on their needs by using free keyword search.

viii. Quick search

The quick search function is provided in the bibliographical worksheet in order to access immediate information for a specific type of object if needed.

ix. Glossary

The glossary provides definitions of vocabulary used for content creation.

x. Translation of terms

This is a list of terms used in ENA and their translations into various languages, which can be selected from a drop-down menu.

xi. Quality control

This window is used by the content creators to send emails from a specific document. The email received by the recipient will show the document's number so that the recipient can retrieve the document from ECMD.

The above basic information about ECMD is considered sufficient to explain the main concepts of the ECMD. However, there are many more functionalities within ECMD which can be used for various purposes depending on the content creators' responsibilities.

It is necessary to mention that the words *window* and *worksheet* refer to the same concept and are used interchangeably in this study. *Window* tends to be the preferred term where an operation occurs infrequently (e.g. the default worksheet for copyright management), whereas *worksheet* is often used where information is input frequently (e.g. a text worksheet for translation processes). This distinction will become readily apparent in chapter 4 where the research data is presented.

2.6 SUMMARY

This chapter has provided background on the CVCE's digital library, ENA, and its content management system, ECMD, together with its relation to the DELOS model and specific information on the users, services and functionality in order to emphasise the importance of those elements to a digital library. The users who form the subjects of this study are the content creators of ENA. This idea of user as content creator differs from the usual DL concept of user as mere consumer. It is one of the notions of users, or actors, outlined in the DELOS model.

The research methodology employed in conducting the study under review will be discussed in the next chapter.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

To explain the research methodology followed in this study, it is necessary to describe task analysis (TA).

Historically, TA emerged from the field of scientific management (Taylor, 1911, as cited in Crystal & Ellington, 2004). Taylor, who formulated the theory, claimed that managers should pay attention to empirical evidence in order to found strong work systems in an organisation. Crystal and Ellington continued to investigate the use of TA in other disciplines. The focus shifted to the field of psychology, and especially industrial psychology in the later period. TA by this time was used more to support systems design. “As applied psychologists and system designers dealt with ever-more complex tasks and supporting systems to increase efficiency and productivity, they began to search for more rigorous, systematic, and cost-effective analytical techniques” (Crystal & Ellington, 2004). The practice of Human-Computer Interaction (HCI) has emerged as a result.

The areas in the system where TA can be applied include allocation of functions, person specification, staffing and job organisation, task and interface design, skills and knowledge acquisition, and performance assurance (Kirwan & Ainsworth, 1992).

3.2 WHAT IS TASK ANALYSIS?

There are various definitions for the term task analysis. One of the more well-known definitions originated from Kirwan and Ainsworth (1992, p. 1). According to these two authors, TA is supported by

“...a number of specific techniques to help the analyst collect information, organize it, and then use it to make various judgements or design decisions. The application of task analysis methods provides the user with a ‘blueprint’ of human involvements in a system, building a detailed picture of that system from the human perspective”.

In the definition of TA provided by the National Institute for Occupational Safety and Health (NIOSH) Mining Division (2008), the use of TA is clearly described as

“...any process of assessing what a user does and why, step by step, and using this information to design a new system or analyze an existing system. The term task analysis refers to a methodology that can be carried out by many specific techniques. These techniques are used to describe or evaluate the interactions between the humans and the equipment or machines. They can be used to make a step-by-step comparison of the capabilities and limitations of the operator with the requirements of the system. The resulting information is useful for designing not only equipment, but also procedures and training.”

Hugo's (2000) description summarises the information TA generates under three points, namely:

- The step-by-step tasks employees perform
- The resources needed to perform this task
- The knowledge deemed necessary prior to the task

According to Kirwan & Ainsworth (1992), TA techniques fall into five areas, namely:

1) Task data collection techniques

- Activity sampling (observation based)
- Critical incident technique (subject based)
- Questionnaires (subject based)
- Structured interviews (subject based)
- Verbal protocols (subject based)

2) Task description techniques

- Charting and network techniques
- Decomposition methods
- Hierarchical task analysis
- Link analysis
- Operational sequence diagrams
- Timeline analysis

3) Task simulation methods

- Computer modelling and simulation

- Simulators/mock-ups
- Table-top analysis
- Walk-throughs and talk-throughs

4) Task behaviour assessment methods

- Barrier and work safety analysis
- Event trees
- Failure modes and effects analysis
- Fault trees
- Hazard and operability analysis
- Influence diagrams
- Management oversight risk tree technique

5) Task requirement evaluation methods

- Ergonomics checklists
- Interface surveys

In-depth details regarding these techniques are well explained in ‘A guide to task analysis’ by Kirwan & Ainsworth (1992), which gives details about the advantages and disadvantages of choosing these data collection techniques together with comparisons of all the techniques.

3.3 HIERARCHICAL TASK ANALYSIS (HTA)

Annette and Duncan state that HTA, one of the ways to approach TA, originated in 1967 and was first used in the evaluation of the needs of organisational training (as cited in Crystal & Ellington, 2004).

HTA can be defined as “...a process of developing a description of a task in terms of operations – things which people do to attain goals – and plans – statements of conditions when each of a set of operations has to be carried out to attain an operating goal” (Kirwan & Ainsworth, 1992, p. 105).

HTA shows the relationship between tasks and subtasks as well as the order in which tasks must take place and system requirements (NIOSH Mining Division, 2008).

Stanton (2006) mentions in his study that HTA “is a core ergonomics approach” and he declares that it has proven itself by being used continuously for over thirty years in a variety of applications including “interface design and evaluation, allocation of function, job aid design, error prediction, and workload assessment.” He also states that HTA has been constantly developed and improved during the last 37 years, but that the original three guiding principles remained unchanged.

In HTA, tasks are described in terms of three main concepts, namely tasks, task hierarchy, and plans. Methods used to identify and categorise the tasks include interviews, user observation, and analysis of existing documents (e.g. manuals, documentation). The tasks are further divided (decomposed) into subtasks, to the point where a subtask is allocated either to the user or the user interface, thus becoming observable (Limbourg & Vanderdonckt, 2003).

3.4 ADVANTAGES OF HTA

The main advantages of HTA are:

- It is a quick technique to gain insight into the processes and procedures of an institution.
- It helps identify crucial aspects of a process or procedure.
- It provides a good overview of relationships between the main tasks and subtasks.
- It makes the workflow of a task clear.
- It can be used to train a new employee in a task.
- It also helps to identify problem areas.
- It provides a context for further data gathering and modelling design possibilities. (Kirwan & Ainsworth, 1992, p. 117)

HTA is used in this study because firstly it helps to identify the tasks that the content creators are doing and how they are doing them. Secondly it also shows aspects that should be considered by the system designer and the technological development team of the CVCE when the next version of the content management system is developed.

3.5 THE RESEARCH PROCESS

This section will describe the research methods including the research sampling, data collection, and data analysis method.

3.5.1 TARGET GROUP AND SAMPLING

The target group of this study is the content creators of the CVCE. It was decided to use purposive sampling in order to obtain as much useful information as possible. The purposive sample of this study comprises five researchers (three historian researchers, one iconographic researcher and one audio-visual researcher), two translators and one legal adviser. To orientate the researcher, the organisational structure of the CVCE was provided as well as an overview of the tasks of the target group.

3.5.2 DATA COLLECTION

To study the tasks of the content creators of ENA, interviews were used as the main data collection technique, with observation as the secondary means of collecting data. The data collection techniques were guided by questionnaires developed by the researcher with input from the CVCE. The questionnaire for the interview is semi-structured in nature to keep the conversation between the researcher and the interviewee consistent. The questionnaire was therefore open-ended and very broad. The intention of the researcher was to use the questionnaire to collect basic background information of each participant before drawing him/her into the main discussion about their tasks.

A pilot interview was conducted with one participant to test the questionnaire as a guideline, as well as to estimate the total time needed to complete all interviews. The questionnaire can be viewed at Appendix 1.

At the beginning of an interview, participants were asked to sign a form giving permission to the researcher to interview the person, as well as to observe them while performing their tasks. This form can be viewed at Appendix 2.

The CVCE's organisational structure, as well as fact-finding visits to the departments where the participants of this study are working, helped the researcher:

- to understand the work environment of the participants

- to get an overview of the tasks performed at the CVCE, including the tasks handled by the participants
- to be familiar with the basic interactions among departments, including the interactions participants are involved in.

During interviews the DL content creators participating in the research did not only talk about their tasks, but also demonstrated them when necessary to clarify a specific task.

The observation questionnaire is a guideline used as an aid in observing interviewees as they carry out their tasks while commenting on them. This observation guideline form can be seen in Appendix 1 together with the interview guideline.

Observations were made of the tasks performed by the participants. It was important to record the interview as well as the movements on the participants' computer screens while they were performing the tasks. This helped the researcher to review the collected data for the data analysis which formed the next step of the study.

Camtasia Studio recording software was used to record the observation sessions. This software is well suited for the purpose as it allows the user to record simultaneously all aspects of the observation such as voice and movements on a computer screen. Further information regarding this software can be obtained from the TechSmith Corporation website at <http://www.techsmith.com/camtasia.asp>. The version used during the data collection was a free trial 30-day version. Camtasia Studio was installed on a laptop and this was connected to each participant's computer by remote assistance techniques to facilitate the recordings. The technological equipment such as the laptop used during the interviews, cable lines, etc., was provided by the technological team of the CVCE. The technological expert who advocated the use of the software assisted the researcher in connecting the laptop to the participants' computers.

Each recording lasts approximately 1 to 2 hours. The time limit was set at no more than 1 hour 30 minutes due to the limit of memory space of the laptop. Approximately 30 minutes at the beginning of each session was allocated for the installation of the equipment. The time set aside for the interviews was used by the DL content creators to perform their regular tasks of the day.

3.5.3 DATA ANALYSIS

The results, which focus on the tasks of each DL content creator, stem from the interviews and observations described in 3.5.2.

HTA, a core ergonomics approach based on human behaviour, is ideal to analyse the results and to present them in terms of the participants' main tasks and sub-tasks, also referred to as goals and sub-goals. The presentation is usually in text and hierarchical format.

The steps followed by the researcher to analyse and report the research data are as follows:

- After receiving the interview recordings, which were all saved in the same folder, the researcher started to review and analyse them one by one. She made notes about the tasks done by each participant and identified main tasks and sub-tasks to be decomposed. A table with five columns was used to orientate, capture and manage the data emerging from interviews and observations. The headings of the five columns were: main tasks and sub-tasks, DL content creator(s) involved, results from interviews and observations, interpretation and recommendations, and finally remarks.
- The researcher then started the descriptive writing of the task decomposition as set out in chapter 4. The hierarchical number scheme for HTA in this study required every main task and sub-task to be uniquely identified in decimal format, e.g. 1.0 for the first main task and 1.1, 1.2, etc., for the following sub-tasks.
- A software package named *Inspiration* was found to be the best solution to easily represent the decomposed task diagrams for each participant. The diagrams are displayed in chapter 4. *Inspiration* allows the user to transfer the diagrams to MS Word documents. The version of *Inspiration* used for this study was a free 30-day trial version. Further information about this software can be found at http://www.inspiration.com/inspiration_intl. This enabled the researcher to complete the HTA.
- Before the final general observations and recommendations of chapter 5 were made, a CVCE subject-matter expert was asked to verify the HTA decomposition in chapter 4.

It should be kept in mind that HTA was never intended to be the end-point in any analysis, just the start. For this study, the HTA decomposition in chapter 4 is not a complete in-depth presentation of the DL content creators' tasks, but it provides a platform for further research.

3.6 SUMMARY

The research methodology for this research, HTA, has been described in this chapter. The research processes, which include the research target, data collection and data analysis, were also discussed. In the next chapter, the results of the HTA decomposition will be presented in text and diagram format.

CHAPTER 4

RESEARCH DATA

4.1 INTRODUCTION

In the previous chapter an overview of the research process (HTA) for this study was given. The specific data-gathering procedures and analysis techniques were also described. The results, incorporating the recorded files from each participant's computer, the interviews and the researcher's personal observations, will now be described in chapter 4.

The results are divided into three parts representing the three categories of participants in this study, namely researchers, translators and legal advisers. The main tasks of each participant in each of the three groups will be decomposed and presented in HTA diagrams using Inspiration 8 IE software, as well as in written format.

4.2 TASK DECOMPOSITION FOR THE RESEARCHERS

RESEARCHER: R1

R1 has been working for the CVCE for approximately 8 years. She has been responsible for iconographic research since she first started the job in 2002. She uses ECMD several times each day.

TASK 1: ICONOGRAPHIC MANAGEMENT

1.0 Iconographic management

1.1 Images

1.2 Cartoons

1.3 Facsimiles

1.4 Receive a request from a researcher

The request can be sent by email or given to her in person.

1.5 Carry out research to look for the requested material

1.5.1 Search for the material from online sources

Some material such as images can be found at online photo

agencies.

1.5.1.1 Contact a source to obtain the material required

Contact can be made by email or telephone.

1.5.2 Visit an archive or library to get the material

1.5.3 Negotiate for the cost and conditions of the material

1.6 Receive the material

The material can be received in electronic format via email or physical format such as a paper image.

1.6.1 Save the file if it is sent via email

The file is saved in a received folder, which is also shared with the audio-visual engineers.

1.6.2 Check the primary information of the received material

For example, if it is an image, it will be opened in a program called iView, which is image management software, in order to check the details of the image when researching the metadata to insert into ECMD.

1.7 Launch ECMD

1.8 Create a new worksheet

1.9 Fill in the primary metadata as known at the time

1.10 Send a quality control email to the legal affairs team for the copyright

1.10.1 Receive a permission email from the legal affairs team

1.10.2 Receive an email informing that the material cannot be published in the digital library

1.10.2.1 Keep a record of this special case in a particular folder awaiting further action to be taken by the legal team

1.11 Create a task for the audio-visual engineers explaining the requirements for processing the material

Task-sharing is done through the SharePoint platform within the CVCE's network.

1.12 Receive an email from an audio-visual engineer after the processing finished

This email is sent automatically from SharePoint after the task is completed and closed.

1.13 Open ECMD

1.14 Recall the worksheet number of the material

1.15 Do further research for missing information relating to that material

The first metadata inserted about the material is the primary information such as the title. At this stage the iconographer will do further research about the details of the material such as names of people if it is an image with people in. The subject and bibliographic information will also be filled in.

1.16 Save the worksheet by attaching the object to it

There are two saving options - regular save and save with attachment.

1.17 Close the worksheet

1.18 Open the worksheet of the caption and title from the table content of the digital library structure

1.19 Insert a caption for that object

1.20 Save the caption worksheet

1.21 Send a quality control email to the historian in charge of the object

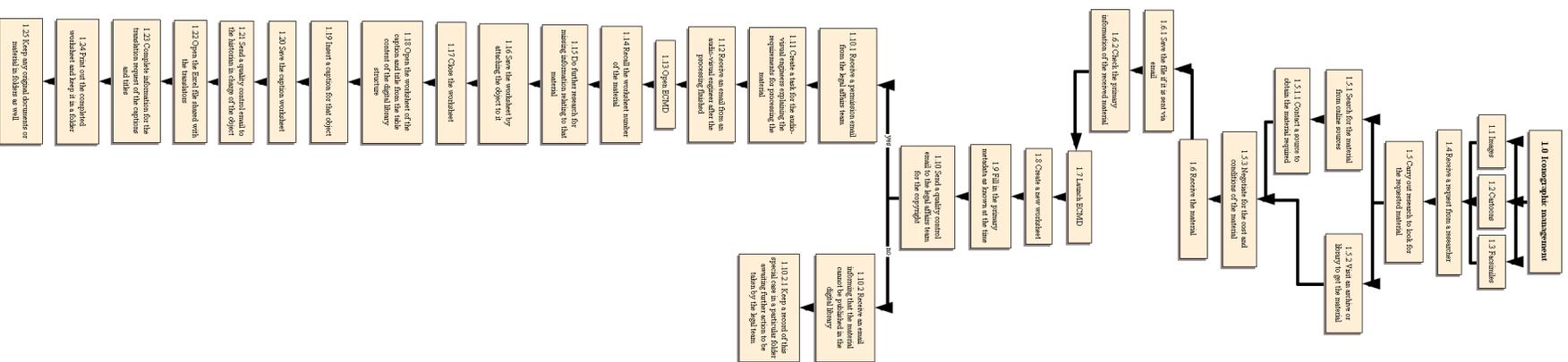
1.22 Open the Excel file shared with the translators

1.23 Complete information for the translation request of the captions and titles

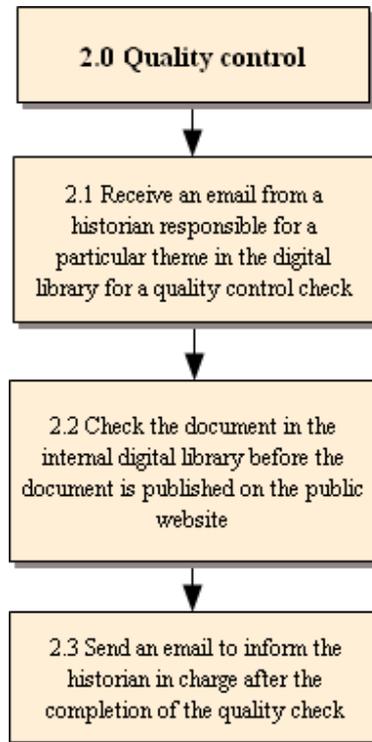
1.24 Print out the completed worksheet and keep it in a folder

The file folders are labelled according to the digital library tree structure.

1.25 Keep any original documents or material in folders as well



TASK 2: QUALITY CONTROL



2.0 Quality control

2.1 Receive an email from a historian responsible for a particular theme in the digital library for a quality control check

2.2 Check the document in the internal digital library before the document is published on the public website

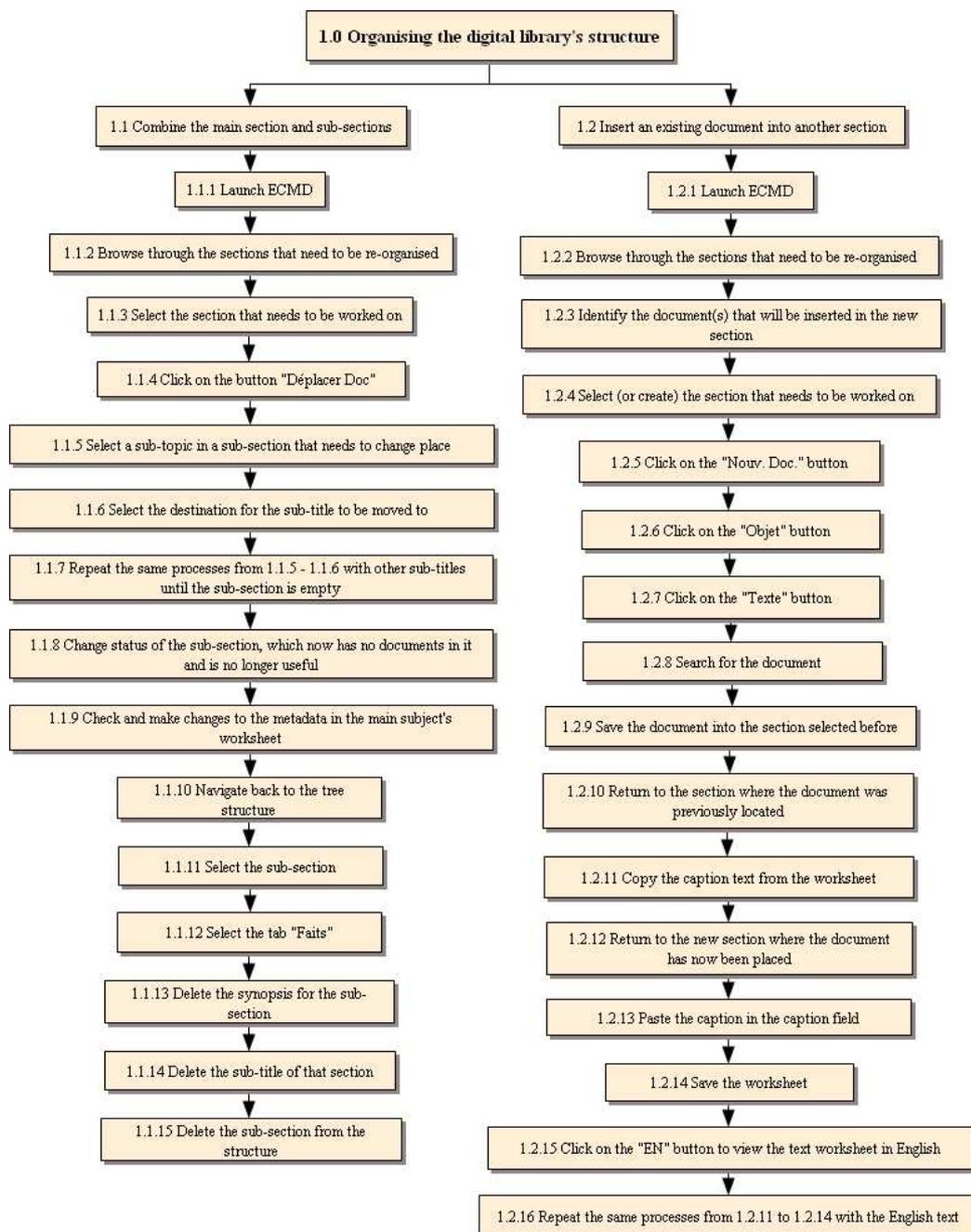
The checking criteria is title, caption, source, copyright, details embedded in some images, etc.

2.3 Send an email to inform the historian in charge after the completion of the quality check

RESEARCHER: R2

R2 is a historian and member of the CVCE's research team. He is responsible for research into historical events. R2 has been working for the CVCE for approximately 10 years, so he has more experience with the system used at the CVCE. He also played a part in the team which developed ECMD when the system was first created. One of his main tasks, as demonstrated during the interview session, is the organisation of the structure of documents in ENA. He uses ECMD every day.

TASK 1: ORGANISING THE DIGITAL LIBRARY'S STRUCTURE



1.0 Organising the digital library's structure

1.1 Combine the main section and sub-sections

- This is an example of organising the structure of the CVCE's digital library.
- The original structure consisted of the main unit and two sub-topics. The researcher needs to merge the sub-sections with the main section.

1.1.1 Launch ECMD

The checking criteria is title, caption, source, copyright, details embedded in some images, etc.

1.1.2 Browse through the sections that need to be re-organised

The digital library's tree structure is located on the left-hand side next to the worksheet in ECMD.

1.1.3 Select the section that needs to be worked on

1.1.4 Click on the button "Déplacer Doc"

This command button is for changing the order of the structure.

1.1.5 Select a sub-topic in a sub-section that needs to change place

- After clicking the "Déplacer Doc" button, there is a pop-up window ready for the operation.
- In this window, there are three tabs for making changes to the order as required. They are the document, sub-topic, and unit tabs. Each tab consists of two commands where the selection of the original and target sections is performed.

1.1.6 Select the destination for the sub-title to be moved to

In this case, the sub-title is amongst several sub-titles in the sub-section, and the destination is the main section of the sub-section. Each sub-title contains different types of document.

1.1.7 Repeat the same processes from 1.1.5 - 1.1.6 with other sub-titles until the sub-section is empty

1.1.8 Change status of the sub-section, which now has no documents in it and is no longer useful

Status will be changed from Disponible to Inutilisable, and an additional note is added explaining that this worksheet is no longer useful because it is integrated with the main subject.

1.1.9 Check and make changes to the metadata in the main subject's worksheet

Most of the time the changes will be done in the subject field since the integration

affects the subject.

1.1.10 Navigate back to the tree structure

1.1.11 Select the sub-section

1.1.12 Select the tab "Faits"

This tab shows the title of the section and the sub-title of that section, which refers to the synopsis for the section.

1.1.13 Delete the synopsis for the sub-section

1.1.14 Delete the sub-title of that section

1.1.15 Delete the sub-section from the structure

1.2 Insert an existing document into another section

1.2.1 Launch ECMD

1.2.2 Browse through the sections that need to be re-organised

1.2.3 Identify the document(s) that will be inserted in the new section

This can be by remembering or writing down the number of the document.

1.2.4 Select (or create) the section that needs to be worked on

1.2.5 Click on the "Nouv. Doc." button

1.2.6 Click on the "Objet" button

1.2.7 Click on the "Texte" button

1.2.8 Search for the document

1.2.9 Save the document into the section selected before

1.2.10 Return to the section where the document was previously located

1.2.11 Copy the caption text from the worksheet

1.2.12 Return to the new section where the document has now been placed

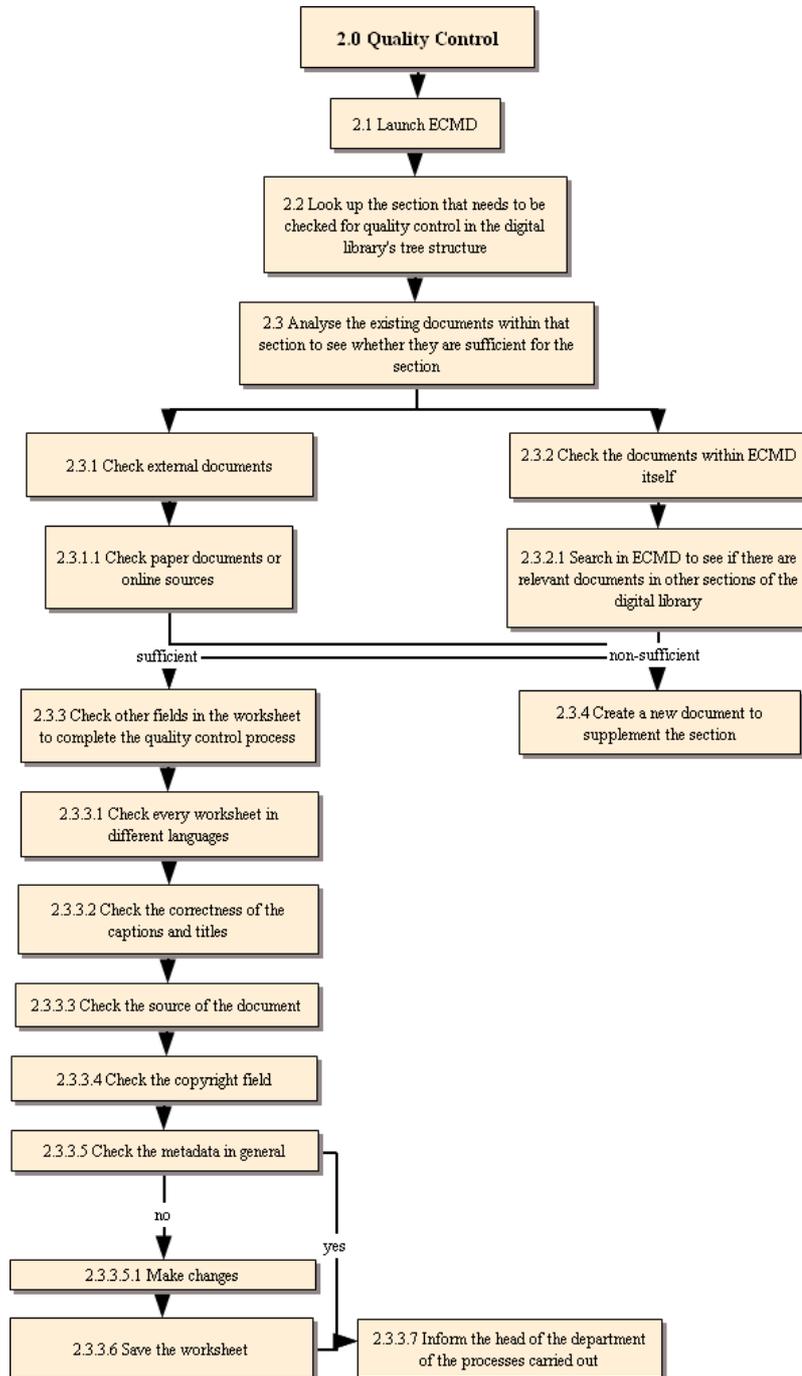
1.2.13 Paste the caption in the caption field

1.2.14 Save the worksheet

1.2.15 Click on the "EN" button to view the text worksheet in English

1.2.16 Repeat the same processes from 1.2.11 to 1.2.14 with the English text

TASK 2: QUALITY CONTROL



2.0 Quality Control

2.1 Launch ECMD

2.2 Look up the section that needs to be checked for quality control in the digital

library's tree structure

2.3 Analyse the existing documents within that section to see whether they are sufficient for the section

2.3.1 Check external documents

2.3.1.1 Check paper documents or online sources

2.3.2 Check the documents within ECMD itself

2.3.2.1 Search in ECMD to see if there are relevant documents in other sections of the digital library

2.3.3 Check other fields in the worksheet to complete the quality control process

2.3.3.1 Check every worksheet in different languages

2.3.3.2 Check the correctness of the captions and titles

2.3.3.3 Check the source of the document

2.3.3.4 Check the copyright field

2.3.3.5 Check the metadata in general

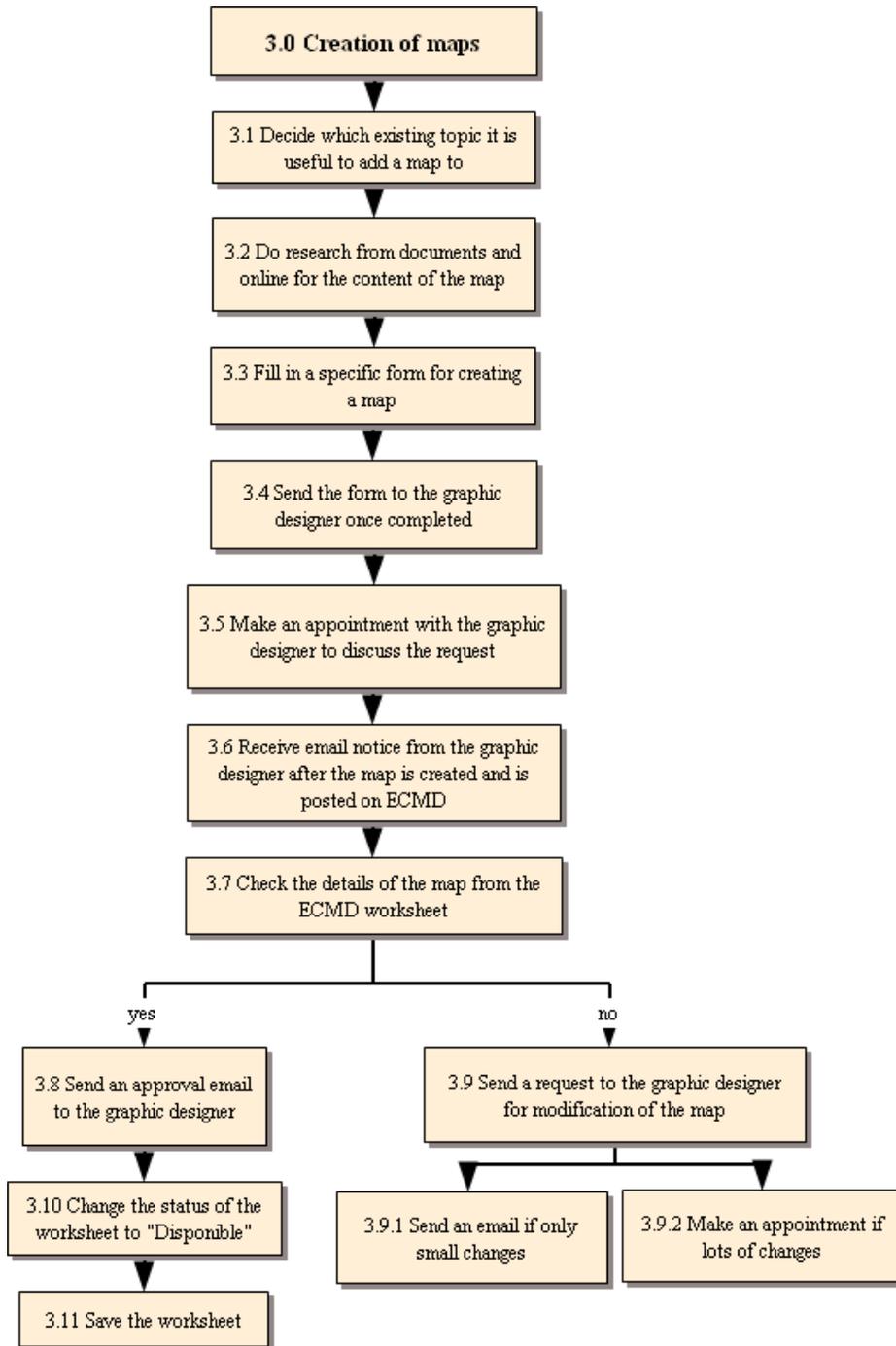
2.3.3.5.1 Make changes

2.3.3.6 Save the worksheet

2.3.3.7 Inform the head of the department of the processes carried out

2.3.4 Create a new document to supplement the section

TASK 3: CREATION OF MAPS



3.0 Creation of maps

3.1 Decide which existing topic it is useful to add a map to

3.2 Do research from documents and online for the content of the map

3.3 Fill in a specific form for creating a map

The form contains the necessary information and description that the researcher wants to be shown on the map.

3.4 Send the form to the graphic designer once completed

3.5 Make an appointment with the graphic designer to discuss the request

Normally after the form is sent to the graphic designer, she will contact the researcher and they will make an appointment to discuss the requirements in order to make sure they both understand and to clarify any technical points that may not be very clear from the form.

3.6 Receive email notice from the graphic designer after the map is created and is posted on ECMD

3.7 Check the details of the map from the ECMD worksheet

3.8 Send an approval email to the graphic designer

3.9 Send a request to the graphic designer for modification of the map

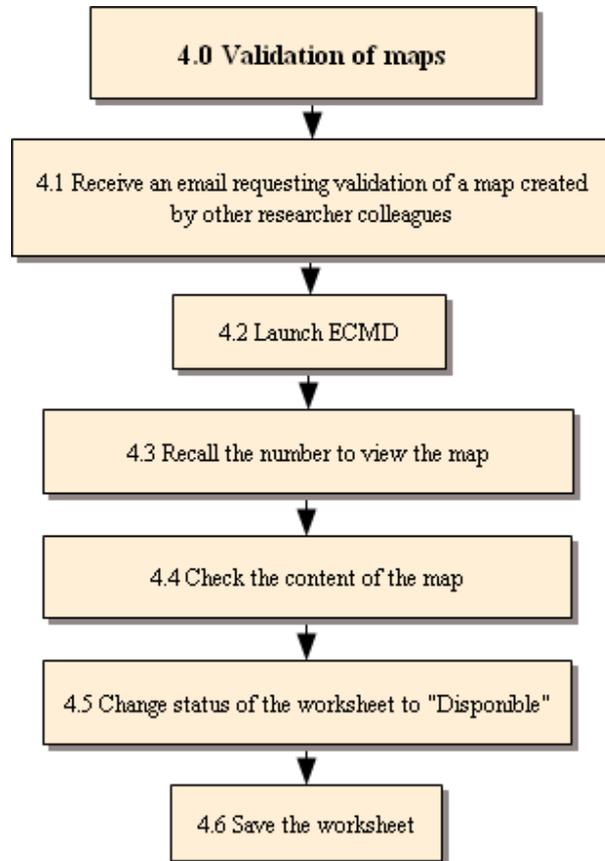
3.9.1 Send an email if only small changes

3.9.2 Make an appointment if lots of changes

3.10 Change the status of the worksheet to "Disponible"

3.11 Save the worksheet

TASK 4: VALIDATION OF MAPS



4.0 Validation of maps

4.1 Receive an email requesting validation of a map created by other researcher colleagues

4.2 Launch ECMD

4.3 Recall the number to view the map

4.4 Check the content of the map

- The researcher will navigate through the map to see whether the names and other content are correct and relevant for the historical timeline of that particular topic, for example.

- The researcher also has to ensure that the map complies with the in-house rules.

4.5 Change status of the worksheet to "Disponible"

4.6 Save the worksheet

RESEARCHER: R3

R3 is also a historian researcher, like R2. However, although he has some similar tasks to his colleagues, his main responsibility is different from the other researchers because he specialises in audio-visual files. He started working in this position around 4 years ago. Since the tasks involving the audio and video files also concern the interviews carried out to create audio and video content, he also plays a significant role in organising the interviews. He uses ECMD every day.

TASK 1: CREATION OF AN AUDIO / VIDEO FILE

1.0 Creation of an audio / video file

1.1 Launch ECMD

1.2 Create a worksheet for an audio / video file

1.2.1 Insert the title of the file

1.2.2 Open the SharePoint platform

1.2.3 Fill in the requirement for audio / video processing to be shared with the audio-visual engineer

1.2.4 Receive an email from the audio-visual engineer that the file is completed

1.2.5 Launch ECMD

1.2.6 Recall the number of the document file

1.2.7 View the file from the audio field

1.2.8 Fill in the metadata

1.2.9 Get together with the audio-visual engineer to fix the file

1.2.9.1 Receive an email regarding the modified version of the file

1.2.9.2 Check the file

1.2.10 Save with the attachment to the digital library's structure

1.2.11 Send a quality control email to a transcriber to make the audio transcription

1.2.12 Send a message through SharePoint to the audio-visual engineer asking to send a finalised audio file to a transcriber

1.2.13 Receive the transcription by email

1.2.14 Save the transcription in the specific folder

1.2.15 Send the transcription file by email to the translator who will proofread the transcription

- 1.2.16 Receive the modified transcription via email**
- 1.2.17 Save the file in the specific folder**
- 1.2.18 Launch ECMD**
- 1.2.19 Create a new text worksheet**
- 1.2.20 Copy the transcription into the text worksheet**
- 1.2.21 Fill in the metadata**
- 1.2.22 Save the worksheet**
- 1.2.23 Open up the audio worksheet**
- 1.2.24 Insert the number of the text sheet within the audio worksheet**
- 1.2.25 Save the worksheet**
- 1.2.26 Select from the tree structure "Textes" under the "Hyper Espace" section**
- 1.2.27 Select "Nouveau Document"**
- 1.2.28 Select the tab "Texte" after another window opened**
- 1.2.29 Recall number of the text worksheet that is already embedded with the audio file**
- 1.2.30 Save this worksheet by attaching it to the audio file**
 - There are two saving options, "Enregistrer dans la base de données" and "Enregistrer et rattacher à un objet"; the latter is selected in this case.
 - This step is to link the audio transcription with the audio file in order to make it available together on the digital library's public interface.
- 1.2.31 Attach a photo into the audio file, if there is one**
 - 1.2.31.1 Launch ECMD**
 - 1.2.31.2 Create a new photo worksheet**
 - 1.2.31.3 Save the photo by attaching it to the audio file worksheet**

TASK 2: ORGANISING AN INTERVIEW TO BE USED IN ENA

2.0 Organising an interview to be used in ENA

2.1 Consult the interview projects from the annual plan of the department

2.2 Cooperate with the researcher in charge of an interview project about the period of time to conduct the interview

2.3 Together with the researcher in charge, make contact with the person to be interviewed for the project

2.3.1 Write a first draft of an interview invitation letter

2.3.2 Send the draft letter to the researcher in charge by email

2.3.3 Send the letter to the interviewees by mail after the latter is approved by the Director of the CVCE

2.4 Oversee the questionnaire devised by the researcher in charge

2.5 Together with the researcher in charge, draw up an interview contract

2.5.1 Send the contract to the legal adviser to get approval

2.5.2 Send the contract to the interviewees by mail or bring it on the interview day

2.6 Together with the researcher in charge, make a decision about where the interview should take place

2.6.1 Contact an organisation to use as an interview location if it is not to take place at the CVCE

2.7 Oversee the interview preparation on the interview day to ensure the smooth running of the interview process

2.8 The interview file is inserted in ECMD by the audio-visual engineer

2.9 The audio-visual engineer notifies that the file has been inserted in ECMD

2.10 Launch ECMD

2.11 Recall the document number

2.12 View the interview file in order to make a cut to the file

2.12.1 Listen to the file and fill in a specific form for cutting requirements

The details of which sessions should be processed is clearly stated in the form including the titles of sessions and the time periods from second to second which should remain or be omitted.

2.12.2 Send this cutting requirement form to the audio-visual engineer via email

2.12.3 Get together with the audio-visual engineer to oversee the process in order to ensure that the file is processed correctly

2.12.4 Save the file in ECMD

2.13 Make excerpts of the interview

2.13.1 Send a requirement form to the audio-visual engineer to process the files for the sessions to be extracted

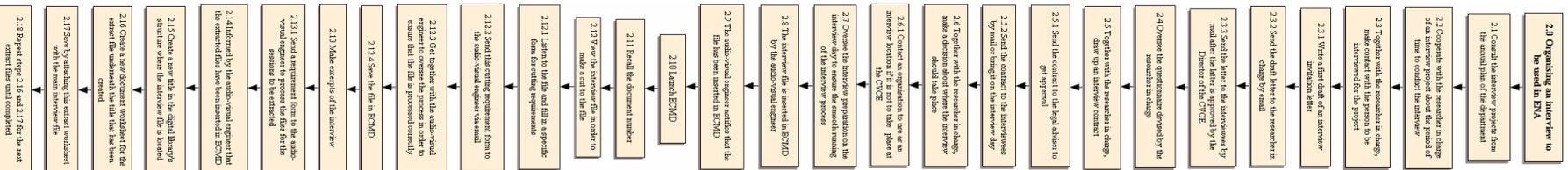
2.14 Informed by the audio-visual engineer that the extracted files have been inserted in ECMD

2.15 Create a new title in the digital library's structure where the interview file is located

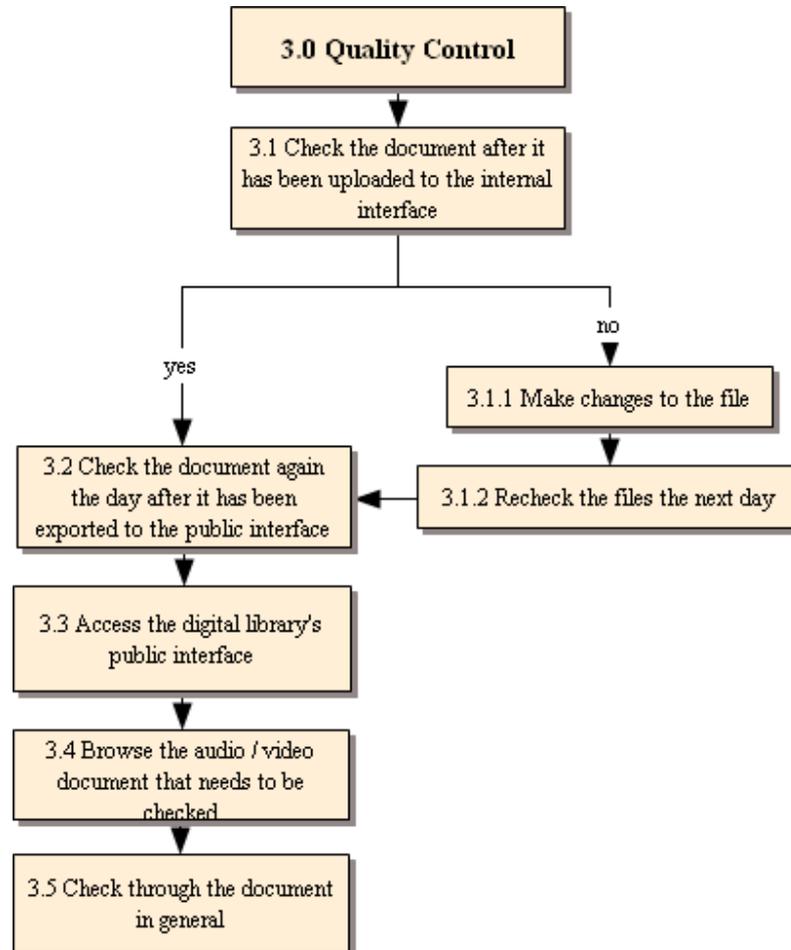
2.16 Create a new document worksheet for the extract file underneath the title that has been created

2.17 Save by attaching this extract worksheet with the main interview file

2.18 Repeat steps 2.16 and 2.17 for the next extract files until completed



TASK 3: QUALITY CONTROL



3.0 Quality Control

3.1 Check the document after it has been uploaded to the internal interface

Normally the created files will be automatically exported to the internal interface every evening.

3.1.1 Make changes to the file

3.1.2 Recheck the files the next day

3.2 Check the document again the day after it has been exported to the public interface

The external export will take place once a week, which is the continuing process from the internal export.

3.3 Access the digital library's public interface

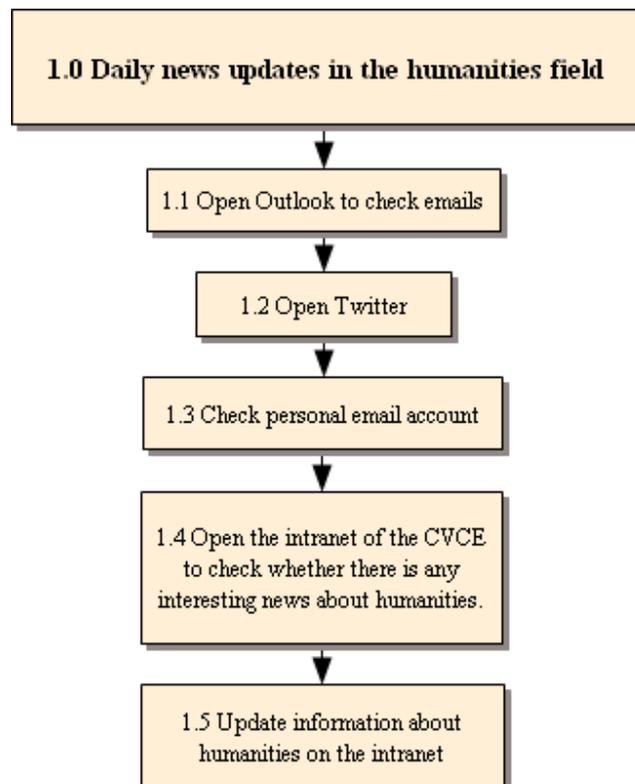
3.4 Browse the audio / video document that needs to be checked

3.5 Check through the document in general

RESEARCHER: R4

R4 only joined the CVCE research team a year ago. He is also a historian researcher, who specialises in European monetary affairs. His extra role for his team and for the CVCE is that he works collaboratively with the other CVCE teams such as the study group (Groupe d'études) on future directions in the field of digital history, so that ENA can be developed to correspond to the needs of users in terms of European historical content, the main subject area of ENA.

TASK 1: DAILY NEWS UPDATES IN THE HUMANITIES FIELD



1.0 Daily news updates in the humanities field

1.1 Open Outlook to check emails

1.2 Open Twitter

Twitter compiles his network in the field of humanities.

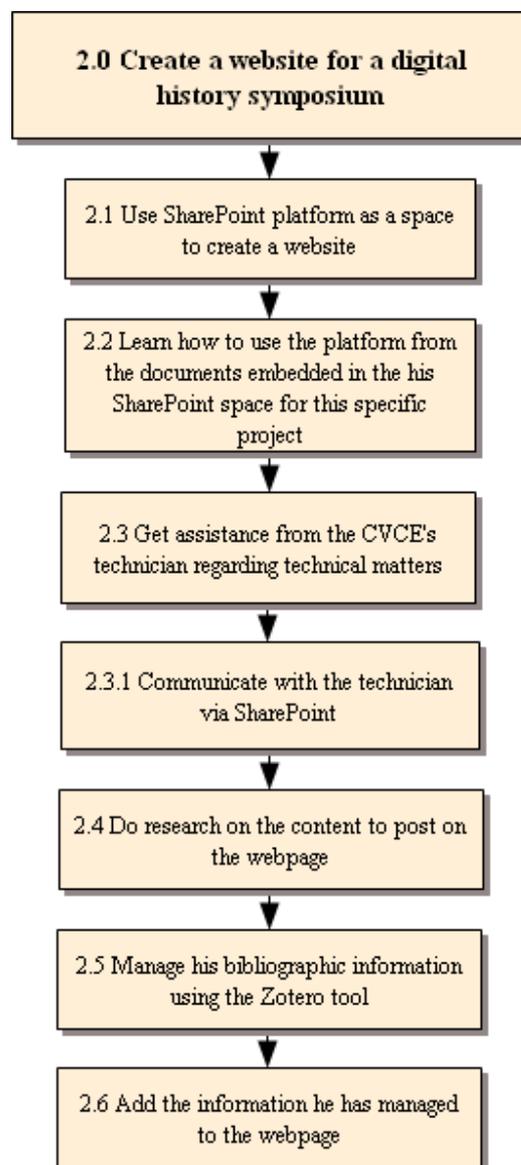
1.3 Check personal email account

This email account collects news and updated information from many sources he subscribes to regarding the field of humanities.

1.4 Open the intranet of the CVCE to check whether there is any interesting news about humanities.

1.5 Update information about humanities on the intranet

TASK 2: CREATE A WEBSITE FOR A DIGITAL HISTORY SYMPOSIUM



2.0 Create a website for a digital history symposium

2.1 Use SharePoint platform as a space to create a website

SharePoint is used inside of the CVCE's network and it is set to work with the web browser Internet Explorer, so he uses this web browser in particular for this reason.

2.2 Learn how to use the platform from the documents embedded in his SharePoint space for this specific project

2.3 Get assistance from the CVCE's technician regarding technical matters

2.3.1 Communicate with the technician via SharePoint

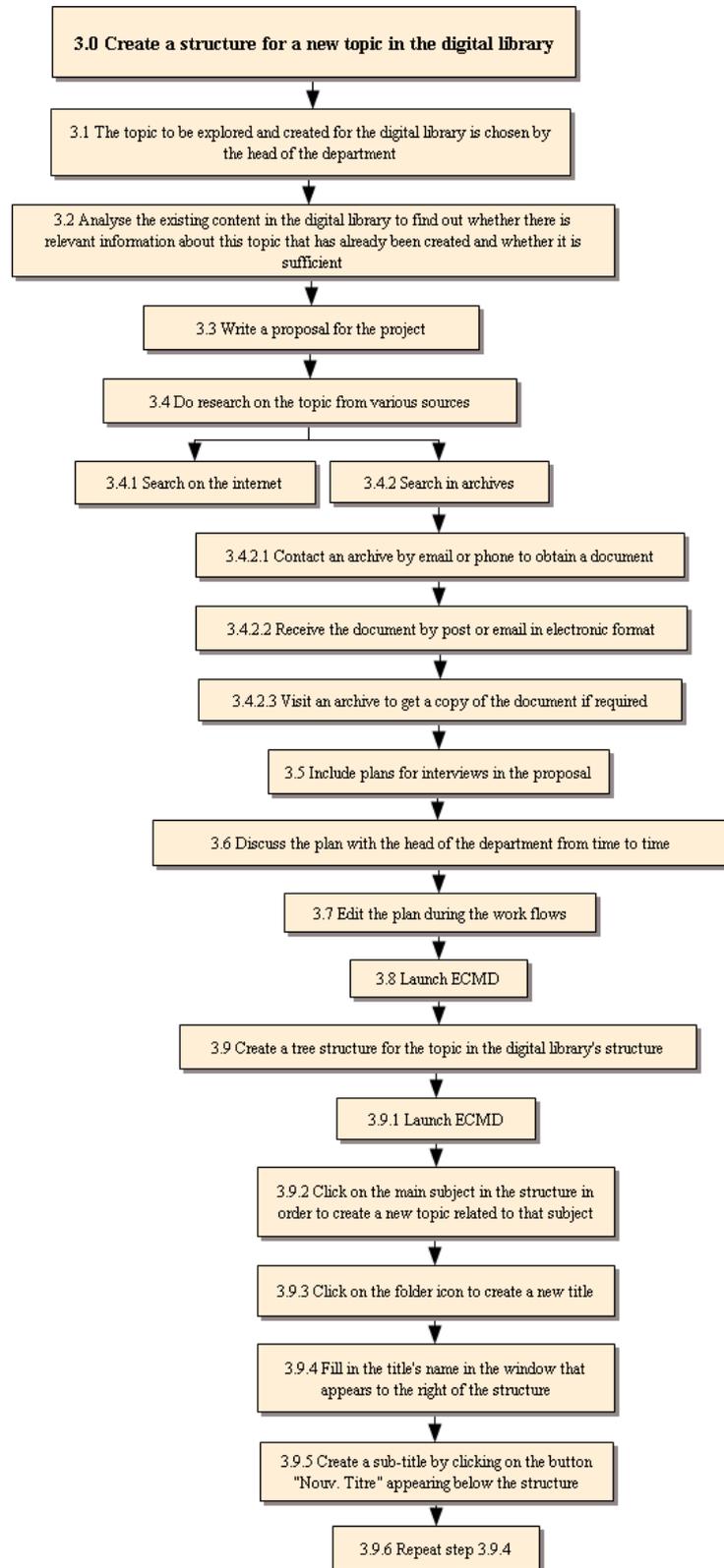
2.4 Do research on the content to post on the webpage

- To carry out this research, he uses a bibliographic plug-in tool, Zotero, which is suitable for the web browser Mozilla. Therefore, he uses this web browser for information management rather than other web browsers. The other preference of using Mozilla rather than other web browsers is that it has various extensions that add more value to the users' information management process.

2.5 Manage his bibliographic information using the Zotero tool

2.6 Add the information he has managed to the webpage

TASK 3: CREATE A STRUCTURE FOR A NEW TOPIC IN THE DIGITAL LIBRARY



3.0 Create a structure for a new topic in the digital library

3.1 The topic to be explored and created for the digital library is chosen by the head of the department

3.2 Analyse the existing content in the digital library to find out whether there is relevant information about this topic that has already been created and whether it is sufficient

3.3 Write a proposal for the project

This process can happen at the same time as searching for documents.

3.4 Do research on the topic from various sources

3.4.1 Search on the internet

Search engines such as Google are often used for this purpose. Other sources include the websites of European organisations and institutions.

3.4.2 Search in archives

3.4.2.1 Contact an archive by email or phone to obtain a document

3.4.2.2 Receive the document by post or email in electronic format

3.4.2.3 Visit an archive to get a copy of the document if required

3.5 Include plans for interviews in the proposal

3.6 Discuss the plan with the head of the department from time to time

3.7 Edit the plan during the work flows

3.8 Launch ECMD

This step happens throughout the process of creating the project.

3.9 Create a tree structure for the topic in the digital library's structure

3.9.1 Launch ECMD

3.9.2 Click on the main subject in the structure in order to create a new topic related to that subject

3.9.3 Click on the folder icon to create a new title

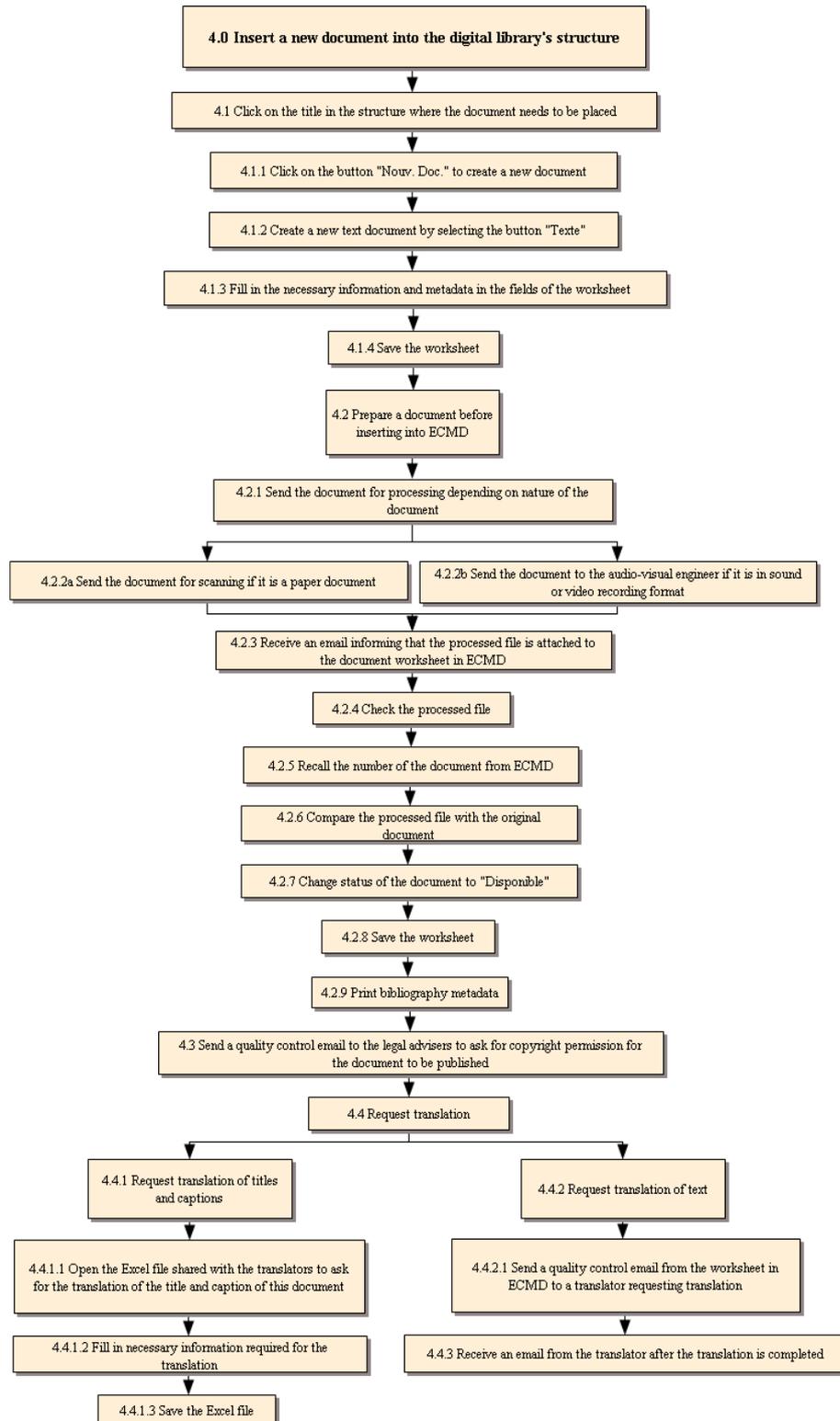
3.9.4 Fill in the title's name in the window that appears to the right of the structure

There are several fields to fill in titles in different languages.

3.9.5 Create a sub-title by clicking on the button "Nouv. Titre" appearing below the structure

3.9.6 Repeat step 3.9.4

TASK 4: INSERT A NEW DOCUMENT INTO THE DIGITAL LIBRARY'S STRUCTURE



4.0 Insert a new document into the digital library's structure

4.1 Click on the title in the structure where the document needs to be placed

4.1.1 Click on the button "Nouv. Doc." to create a new document

4.1.2 Create a new text document by selecting the button "Texte"

4.1.3 Fill in the necessary information and metadata in the fields of the worksheet

4.1.4 Save the worksheet

4.2 Prepare a document before inserting into ECMD

4.2.1 Send the document for processing depending on nature of the document

4.2.2a Send the document for scanning if it is a paper document

4.2.2b Send the document to the audio-visual engineer if it is in sound or video recording format

4.2.3 Receive an email informing that the processed file is attached to the document worksheet in ECMD

4.2.4 Check the processed file

4.2.5 Recall the number of the document from ECMD

4.2.6 Compare the processed file with the original document

4.2.7 Change status of the document to "Disponible"

4.2.8 Save the worksheet

4.2.9 Print bibliography metadata

4.3 Send a quality control email to the legal advisers to ask for copyright permission for the document to be published

4.4 Request translation

4.4.1 Request translation of titles and captions

4.4.1.1 Open the Excel file shared with the translators to ask for the translation of the title and caption of this document

4.4.1.2 Fill in necessary information required for the translation

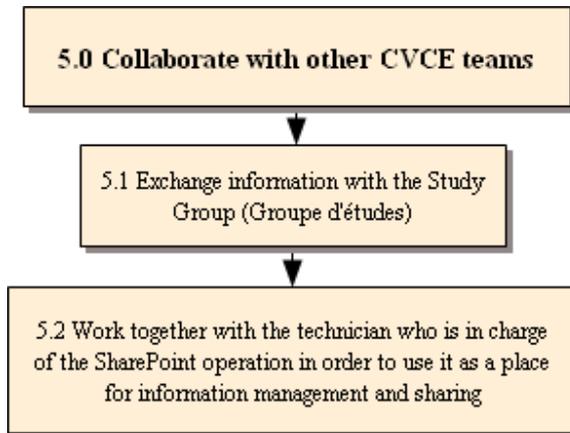
4.4.1.3 Save the Excel file

4.4.2 Request translation of text

4.4.2.1 Send a quality control email from the worksheet in ECMD to a translator requesting translation

4.4.3 Receive an email from the translator after the translation is completed

TASK 5: COLLABORATE WITH OTHER CVCE TEAMS

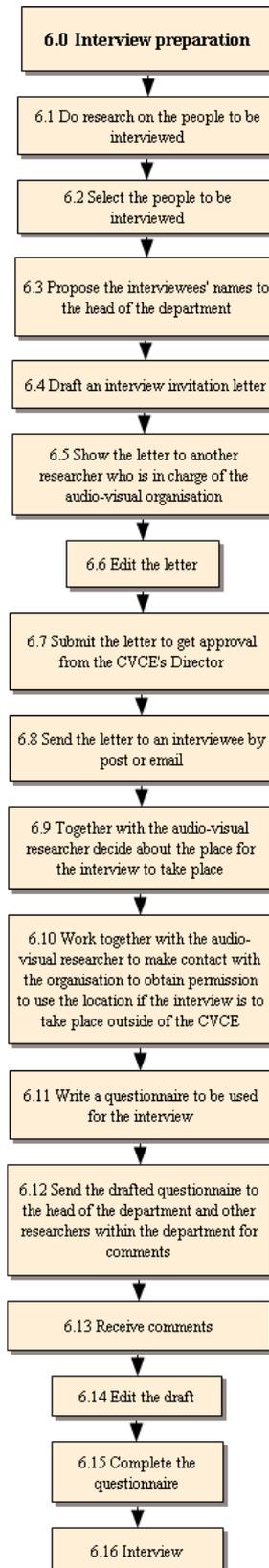


5.0 Collaborate with other CVCE teams

5.1 Exchange information with the Study Group (Groupe d'études)

5.2 Work together with the technician who is in charge of the SharePoint operation in order to use it as a place for information management and sharing

TASK 6: INTERVIEW PREPARATION



6.0 Interview preparation

6.1 Do research on the people to be interviewed

- The information can be found in both online and paper-based sources.
- This task continues until step 6.14.

6.2 Select the people to be interviewed

6.3 Propose the interviewees' names to the head of the department

6.4 Draft an interview invitation letter

6.5 Show the letter to another researcher who is in charge of the audio-visual organisation

6.6 Edit the letter

6.7 Submit the letter to get approval from the CVCE's Director

6.8 Send the letter to an interviewee by post or email

6.9 Together with the audio-visual researcher decide about the place for the interview to take place

6.10 Work together with the audio-visual researcher to make contact with the organisation to obtain permission to use the location if the interview is to take place outside of the CVCE

6.11 Write a questionnaire to be used for the interview

6.12 Send the drafted questionnaire to the head of the department and other researchers within the department for comments

6.13 Receive comments

6.14 Edit the draft

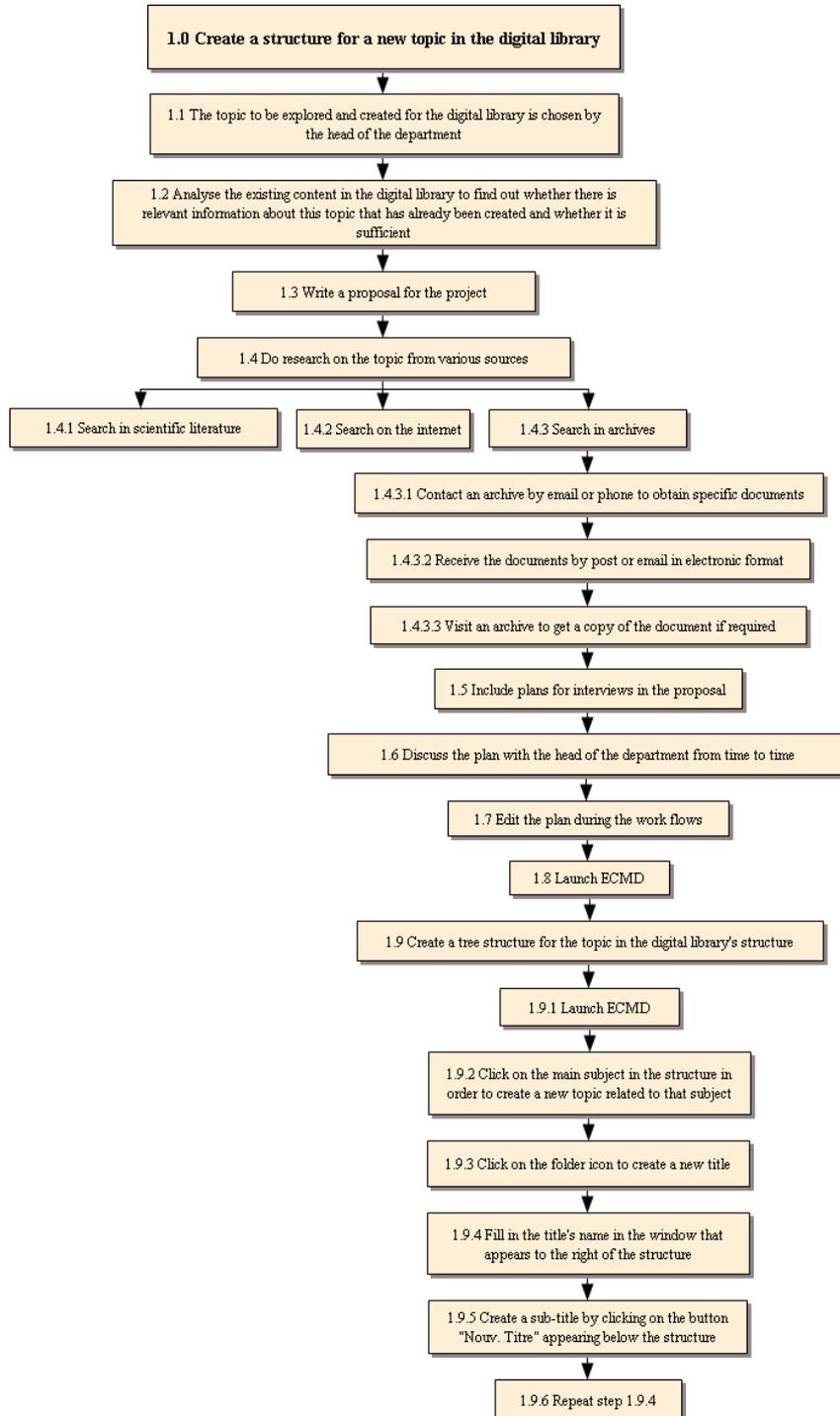
6.15 Complete the questionnaire

6.16 Interview

RESEARCHER: R5

R5 has been working at the CVCE as a researcher for just over 3 years. He always uses ECMD for his daily tasks and has been using it since he began this position.

TASK 1: CREATE A STRUCTURE FOR A NEW TOPIC IN THE DIGITAL LIBRARY



1.0 Create a structure for a new topic in the digital library

1.1 The topic to be explored and created for the digital library is chosen by the head of the department

1.2 Analyse the existing content in the digital library to find out whether there is relevant information about this topic that has already been created and whether it is sufficient

1.3 Write a proposal for the project

This process can happen at the same time as searching for documents.

1.4 Do research on the topic from various sources

1.4.1 Search in scientific literature

1.4.2 Search on the internet

Search engines such as Google are often used for this purpose. Other sources include the websites of European organisations and institutions.

1.4.3 Search in archives

1.4.3.1 Contact an archive by email or phone to obtain specific documents

1.4.3.2 Receive the documents by post or email in electronic format

1.4.3.3 Visit an archive to get a copy of the document if required

1.5 Include plans for interviews in the proposal

1.6 Discuss the plan with the head of the department from time to time

1.7 Edit the plan during the work flows

1.8 Launch ECMD

This step happens throughout the process of creating the project.

1.9 Create a tree structure for the topic in the digital library's structure

1.9.1 Launch ECMD

1.9.2 Click on the main subject in the structure in order to create a new topic related to that subject

In this example, the researcher is creating a new topic on "Western European Union", which belongs to the main topic "European Organisations".

1.9.3 Click on the folder icon to create a new title

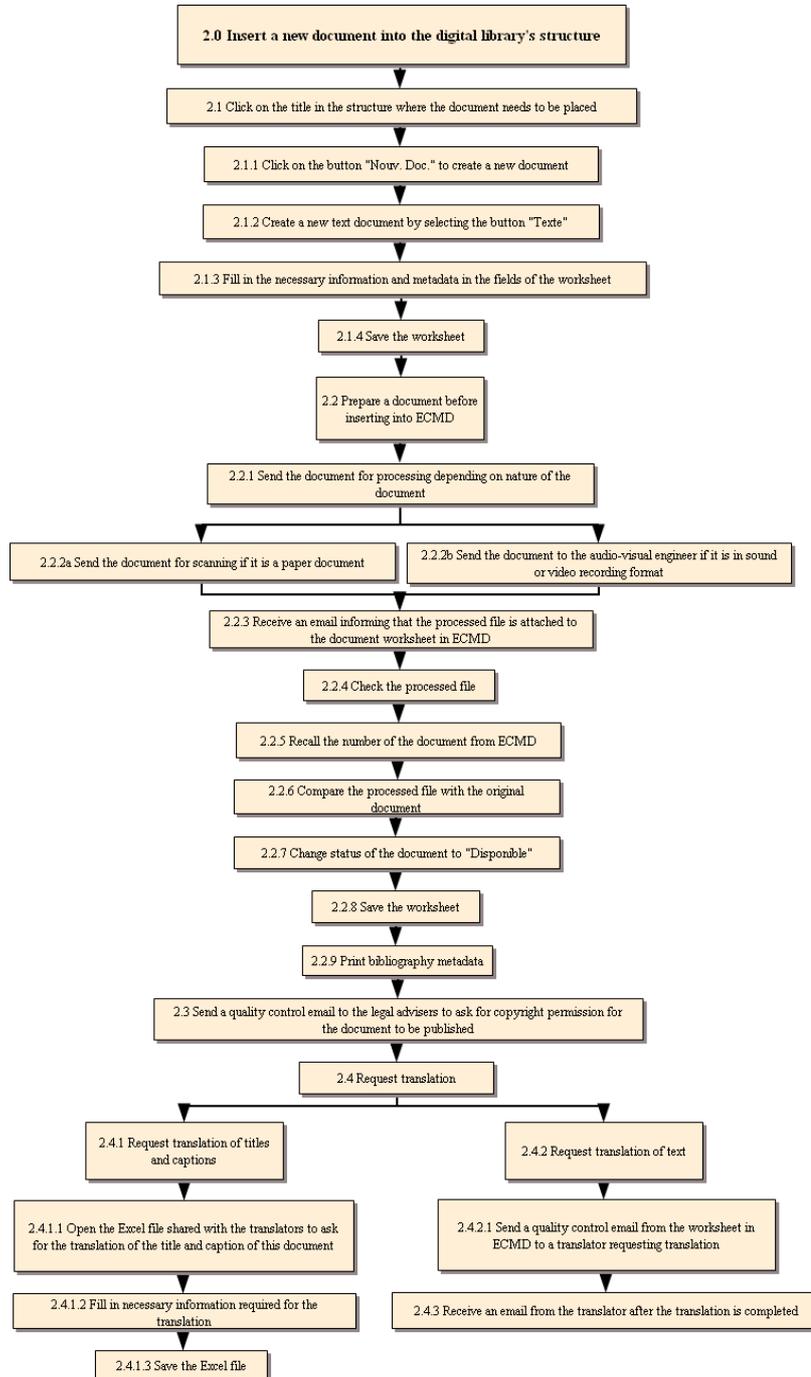
1.9.4 Fill in the title's name in the window that appears to the right of the structure

There are several fields to fill in titles in different languages.

1.9.5 Create a sub-title by clicking on the button "Nouv. Titre" appearing below the structure

1.9.6 Repeat step 1.9.4

TASK 2: INSERT A NEW DOCUMENT INTO THE DIGITAL LIBRARY'S STRUCTURE



2.0 Insert a new document into the digital library's structure

2.1 Click on the title in the structure where the document needs to be placed

2.1.1 Click on the button "Nouv. Doc." to create a new document

2.1.2 Create a new text document by selecting the button "Texte"

2.1.3 Fill in the necessary information and metadata in the fields of the worksheet

2.1.4 Save the worksheet

2.2 Prepare a document before inserting into ECMD

2.2.1 Send the document for processing depending on nature of the document

2.2.2a Send the document for scanning if it is a paper document

2.2.2b Send the document to the audio-visual engineer if it is in sound or video recording format

2.2.3 Receive an email informing that the processed file is attached to the document worksheet in ECMD

2.2.4 Check the processed file

2.2.5 Recall the number of the document from ECMD

2.2.6 Compare the processed file with the original document

2.2.7 Change status of the document to "Disponible"

2.2.8 Save the worksheet

2.2.9 Print bibliography metadata

2.3 Send a quality control email to the legal advisers to ask for copyright permission for the document to be published

2.4 Request translation

2.4.1 Request translation of titles and captions

2.4.1.1 Open the Excel file shared with the translators to ask for the translation of the title and caption of this document

2.4.1.2 Fill in necessary information required for the translation

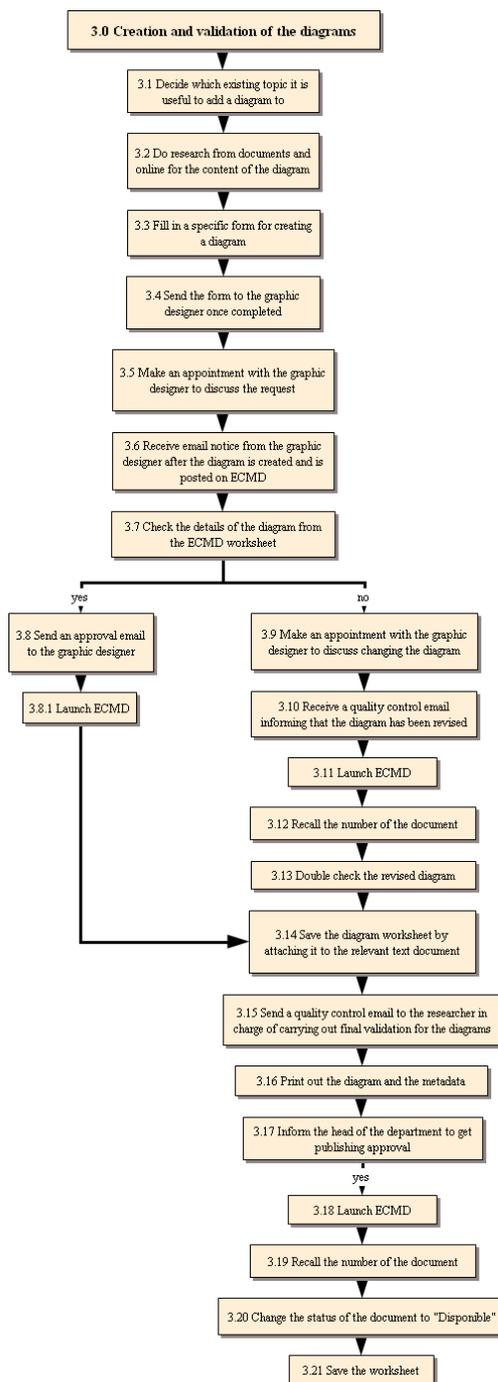
2.4.1.3 Save the Excel file

2.4.2 Request translation of text

2.4.2.1 Send a quality control email from the worksheet in ECMD to a translator requesting translation

2.4.3 Receive an email from the translator after the translation is completed

TASK 3: CREATION AND VALIDATION OF THE DIAGRAMS



3.0 Creation and validation of the diagrams

3.1 Decide which existing topic it is useful to add a diagram to

3.2 Do research from documents and online for the content of the diagram

3.3 Fill in a specific form for creating a diagram

The form contains the necessary information and description that the researcher wants to be shown on the diagram.

3.4 Send the form to the graphic designer once completed

3.5 Make an appointment with the graphic designer to discuss the request

Normally after the form is sent to the graphic designer, she will contact the researcher and they will make an appointment to discuss the requirements in order to make sure they both understand and to clarify any technical points that may be not very clear from the form.

3.6 Receive email notice from the graphic designer after the diagram is created and is posted on ECMD

3.7 Check the details of the diagram from the ECMD worksheet

The researcher can modify the text of the diagram from ECMD but not the format of the diagram because that can only be done by the graphic designer.

3.8 Send an approval email to the graphic designer

3.8.1 Launch ECMD

3.9 Make an appointment with the graphic designer to discuss changing the diagram

3.10 Receive a quality control email informing that the diagram has been revised

3.11 Launch ECMD

3.12 Recall the number of the document

3.13 Double check the revised diagram

3.14 Save the diagram worksheet by attaching it to the relevant text document

3.15 Send a quality control email to the researcher in charge of carrying out final validation for the diagrams

3.16 Print out the diagram and the metadata

These printed papers will be enclosed with the original copy of the document and are kept in a specific folder.

3.17 Inform the head of the department to get publishing approval

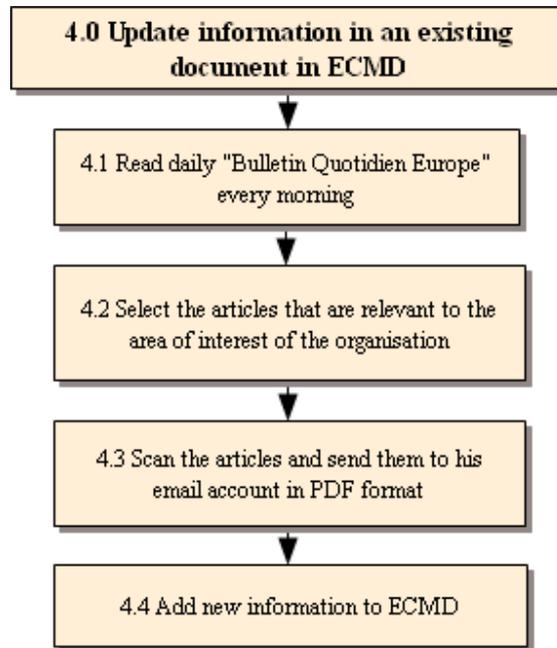
3.18 Launch ECMD

3.19 Recall the number of the document

3.20 Change the status of the document to "Disponible"

3.21 Save the worksheet

TASK 4: UPDATE INFORMATION IN AN EXISTING DOCUMENT IN ECMD



4.0 Update information in an existing document in ECMD

Information for updating might include current pictures of politicians, new policies, etc.

4.1 Read daily "Bulletin Quotidien Europe" every morning

4.2 Select the articles that are relevant to the area of interest of the organisation

4.3 Scan the articles and send them to his email account in PDF format

4.4 Add new information to ECMD

The updating process is similar to creating a document, depending on the type of document.

4.3 TASK DECOMPOSITION FOR THE TRANSLATORS

TRANSLATOR: T1

T1 is a translator who has been working for the CVCE for 10 years. Similarly to R2, she was also a part of the ECMD developing team when the tool was first created. She also has a significant role in overseeing the translation unit, including administrative tasks. Her main responsibility is still translation. She translates material from English, German, Luxembourgish and Italian into French for ENA. She uses ECMD every day.

TASK 1: TRANSLATION

1.0 Translation

1.1 Translate text in ECMD

1.1.1 Check emails in Outlook

1.1.2 Check Excel file shared between the researchers and translators for translation requests

1.1.3 Launch ECMD

1.1.4 Recall the numbers of documents that need to be translated in ECMD

1.1.5 Copy text from the text field of ECMD

1.1.6 Open a page in Microsoft Word

1.1.7 Paste the text into the Microsoft Word page

1.1.8 Save the text in the translation work folders where she keeps all her translation records

1.1.9 Start the translation of the Word document

- She will read through the text and if she thinks that there are some mistakes in the text, she will refer back to the original version of the text before it is inserted into ECMD. The original could be paper documents or electronic files. She may also ask the researcher who is responsible for that document directly.
- She always uses the Wordfast plug-in while doing the translation.
- She also uses paper dictionaries, online dictionaries, search engines, reference websites about European terminology, as well as consulting the CVCE's researchers if she has doubts about some information.

1.1.10 Clean up the text and check spelling and overall correctness after the translation is done

1.1.11 Save the file

1.1.12 Copy the translated text

1.1.13 Paste the translated text into ECMD worksheet

1.1.14 Fill in necessary metadata fields

1.1.15 Change status of the document to "Pré-disponible" to state that this document is pre-available for publishing

1.1.16 Save the worksheet

1.1.17 Send a quality control email to the requesting researcher

1.1.18 Mark in the Excel file where she keeps records of her translation work to show that this document is completed

1.2 Translate miscellaneous documents

Sometimes she will be asked to translate some documents such as letters, emails, notes, etc.

1.2.1 Translate CVCE documentation

1.2.2 Translate letters or documents requested by CVCE colleagues

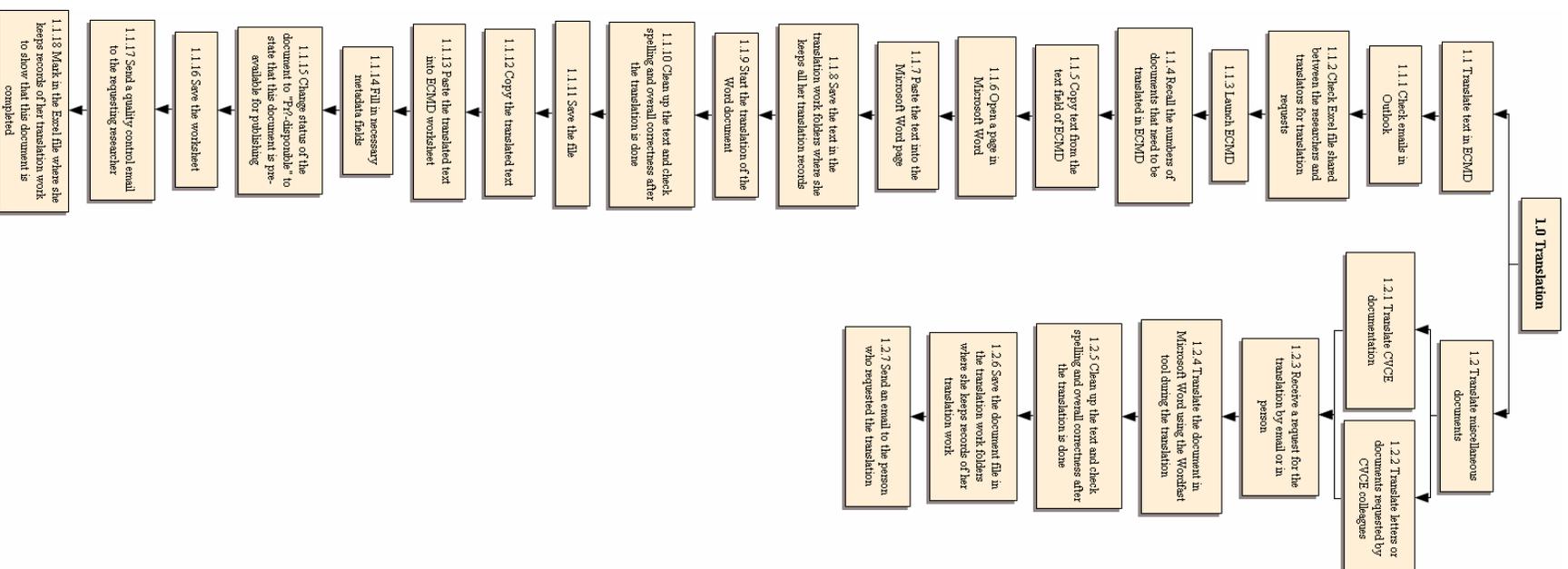
1.2.3 Receive a request for the translation by email or in person

1.2.4 Translate the document in Microsoft Word using the Wordfast tool during the translation

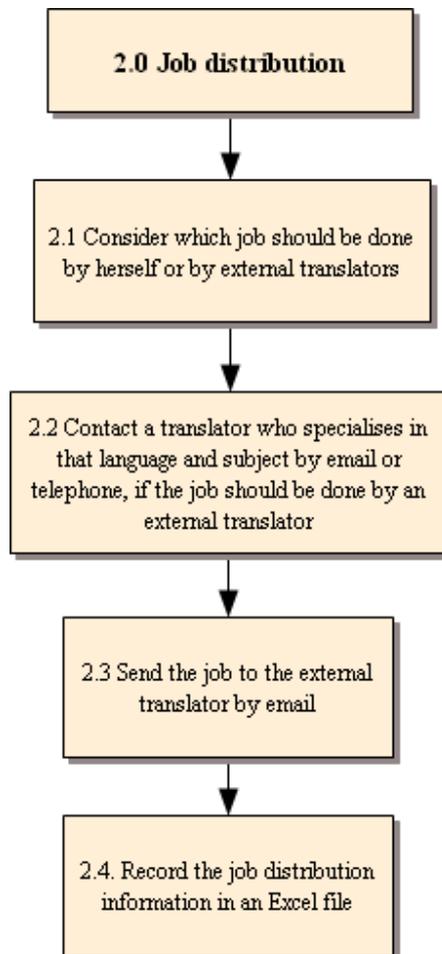
1.2.5 Clean up the text and check spelling and overall correctness after the translation is done

1.2.6 Save the document file in the translation work folders where she keeps records of her translation work

1.2.7 Send an email to the person who requested the translation



TASK 2: JOB DISTRIBUTION



2.0 Job distribution

2.1 Consider which job should be done by herself or by external translators

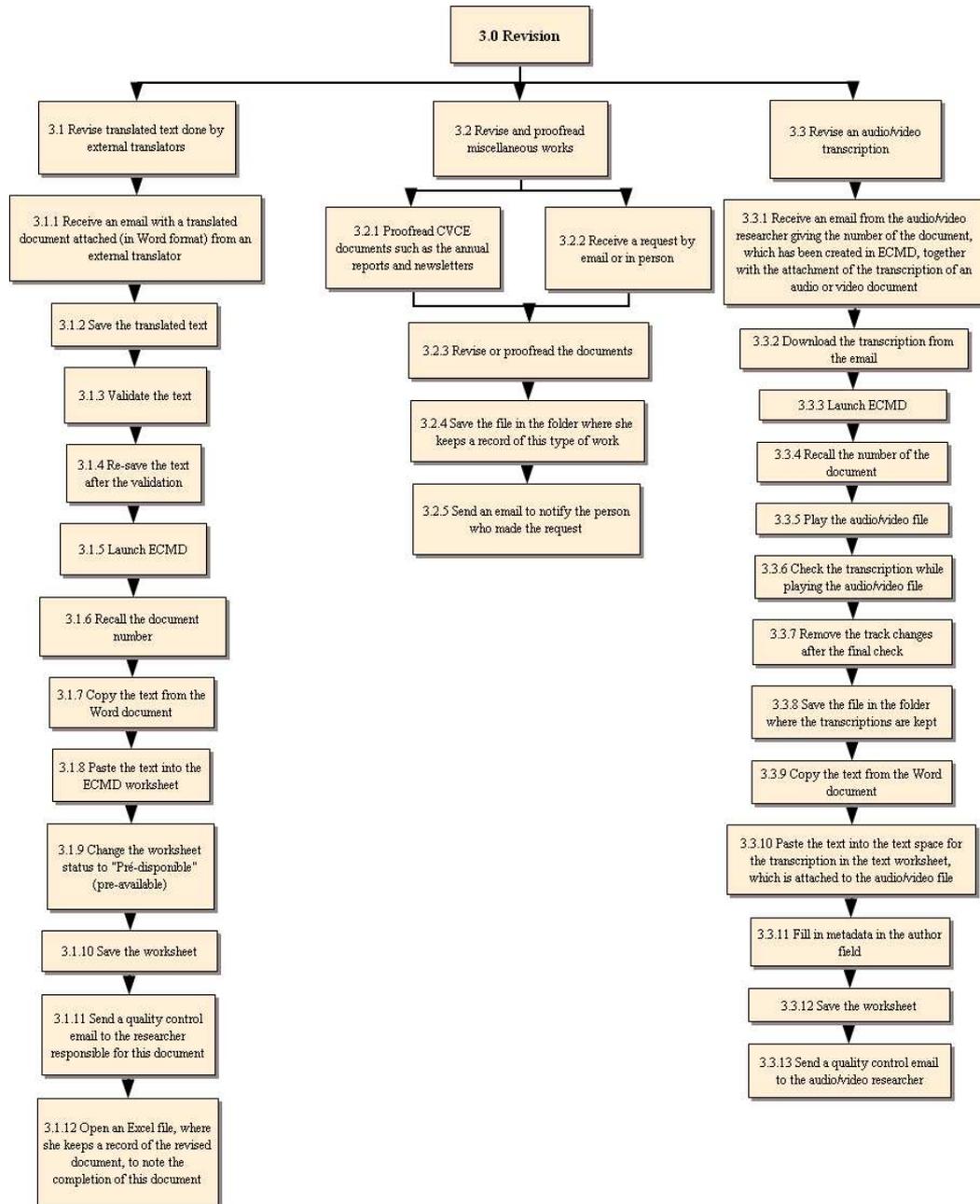
She will particularly consider the amount of work, time, and budget.

2.2 Contact a translator who specialises in that language and subject by email or telephone, if the job should be done by an external translator

2.3 Send the job to the external translator by email

2.4. Record the job distribution information in an Excel file

TASK 3: REVISION



3.0 Revision

3.1 Revise translated text done by external translators

3.1.1 Receive an email with a translated document attached (in Word format) from an external translator

3.1.2 Save the translated text

3.1.3 Validate the text

The quick validation based on the in-house translation rules will be made before inserting the text in ECMD.

3.1.4 Re-save the text after the validation

3.1.5 Launch ECMD

3.1.6 Recall the document number

3.1.7 Copy the text from the Word document

3.1.8 Paste the text into the ECMD worksheet

3.1.9 Change the worksheet status to "Pré-disponible" (pre-available)

3.1.10 Save the worksheet

3.1.11 Send a quality control email to the researcher responsible for this document

3.1.12 Open an Excel file, where she keeps a record of the revised document, to note the completion of this document

3.2 Revise and proofread miscellaneous works

3.2.1 Proofread CVCE documents such as the annual reports and newsletters

3.2.2 Receive a request by email or in person

3.2.3 Revise or proofread the documents

3.2.4 Save the file in the folder where she keeps a record of this type of work

3.2.5 Send an email to notify the person who made the request

3.3 Revise an audio/video transcription

3.3.1 Receive an email from the audio/video researcher giving the number of the document, which has been created in ECMD, together with the attachment of the transcription of an audio or video document

3.3.2 Download the transcription from the email

3.3.3 Launch ECMD

3.3.4 Recall the number of the document

3.3.5 Play the audio/video file

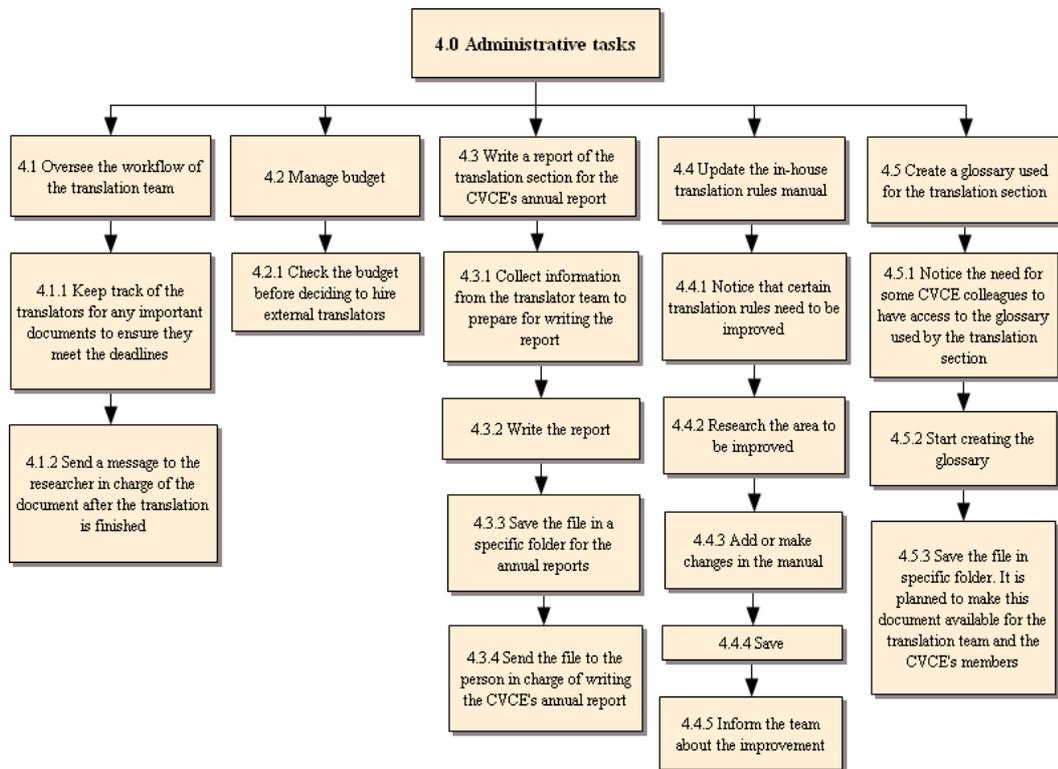
In the worksheet where the audio or video file is embedded, there are buttons to click to replay the file, with two choices to change the quality of the file.

3.3.6 Check the transcription while playing the audio/video file

The transcription is done in a Word document. She uses the "track changes" function to make corrections to the text.

- 3.3.7 Remove the track changes after the final check**
- 3.3.8 Save the file in the folder where the transcriptions are kept**
- 3.3.9 Copy the text from the Word document**
- 3.3.10 Paste the text into the text space for the transcription in the text worksheet, which is attached to the audio/video file**
- 3.3.11 Fill in metadata in the author field**
- 3.3.12 Save the worksheet**
- 3.3.13 Send a quality control email to the audio/video researcher**

TASK 4: ADMINISTRATIVE TASKS



4.0 Administrative tasks

4.1 Oversee the workflow of the translation team

4.1.1 Keep track of the translators for any important documents to ensure they meet the deadlines

4.1.2 Send a message to the researcher in charge of the document after the translation is finished

4.2 Manage budget

4.2.1 Check the budget before deciding to hire external translators

She creates an Excel file to record documents needed to be sent out for external translation each year and calculates the cost to ensure the budget will last to cover the entire year before proceeding with the translation by external translators.

4.3 Write a report of the translation section for the CVCE's annual report

4.3.1 Collect information from the translator team to prepare for writing the report

4.3.2 Write the report

4.3.3 Save the file in a specific folder for the annual reports

4.3.4 Send the file to the person in charge of writing the CVCE's annual report

4.4 Update the in-house translation rules manual

She does this updating a few times a year.

4.4.1 Notice that certain translation rules need to be improved

4.4.2 Research the area to be improved

4.4.3 Add or make changes in the manual

4.4.4 Save

4.4.5 Inform the team about the improvement

4.5 Create a glossary used for the translation section

4.5.1 Notice the need for some CVCE colleagues to have access to the glossary used by the translation section

4.5.2 Start creating the glossary

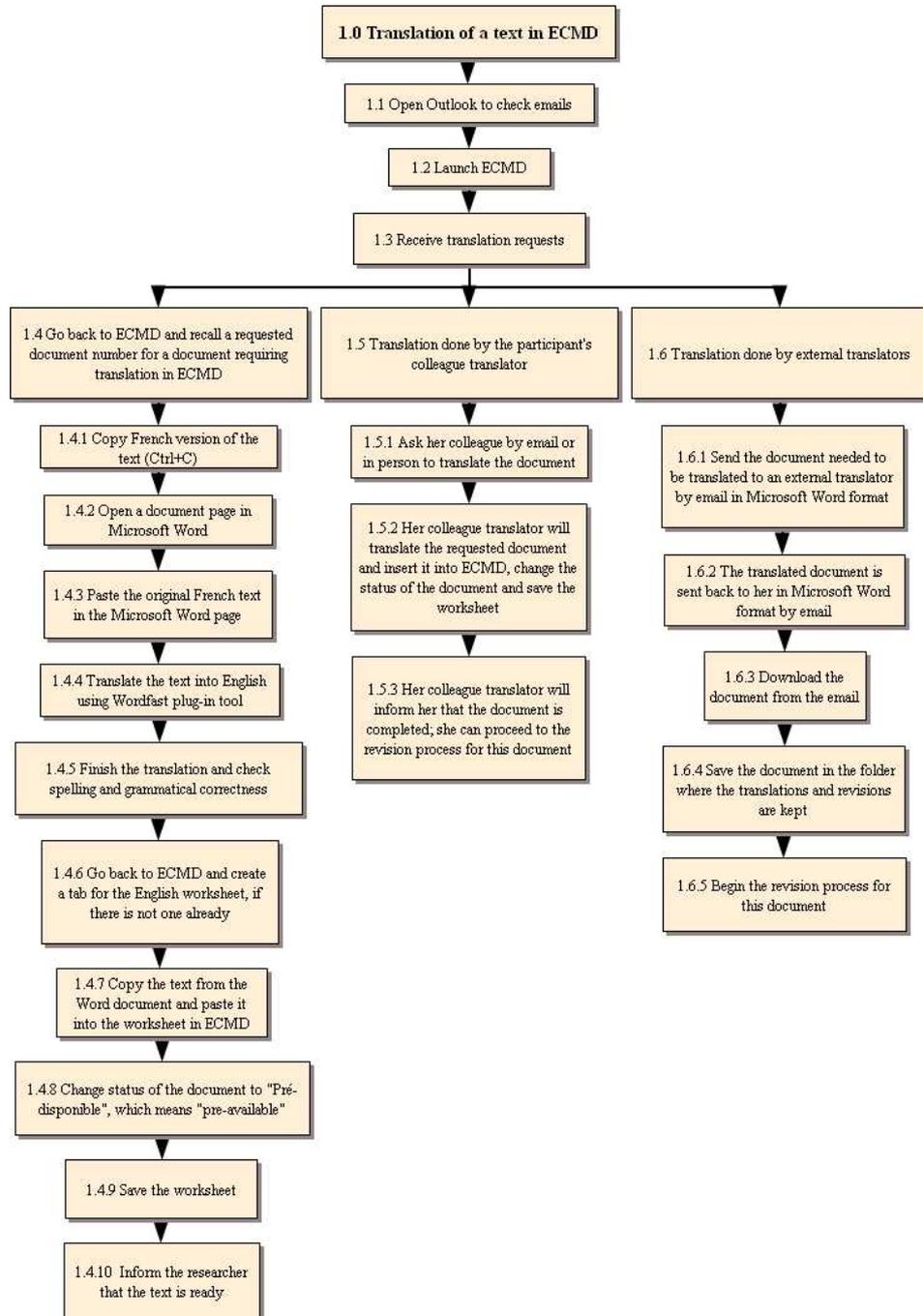
4.5.3 Save the file in specific folder. It is planned to make this document available for the translation team and the CVCE's members

The document is in progress.

TRANSLATOR: T2

T2 has been working for the CVCE for approximately 2 years. However, she is not completely new to the organisation as she formerly completed an internship at the CVCE in the translation section. She uses ECMD every day. Her main responsibility is to translate material from French into English for ENA.

TASK 1: TRANSLATION OF A TEXT IN ECMD



1.0 Translation of a text in ECMD

1.1 Open Outlook to check emails

The translation requests do not always come via emails in Outlook; she is sometimes given a list of texts, etc.

1.2 Launch ECMD

1.3 Receive translation requests

1.4 Go back to ECMD and recall a requested document number for a document requiring translation in ECMD

1.4.1 Copy French version of the text (Ctrl+C)

1.4.2 Open a document page in Microsoft Word

1.4.3 Paste the original French text in the Microsoft Word page

She will save the document twice in the translation work folders, once as a French "source text" and once for the English version in which the translation will be done.

1.4.4 Translate the text into English using Wordfast plug-in tool

She also uses some marking functions like dots to show spaces between two words, and paragraph symbols on her document to be translated.

1.4.5 Finish the translation and check spelling and grammatical correctness

1.4.6 Go back to ECMD and create a tab for the English worksheet, if there is not one already

1.4.7 Copy the text from the Word document and paste it into the worksheet in ECMD

1.4.8 Change status of the document to "Pré-disponible", which means "pre-available"

1.4.9 Save the worksheet

1.4.10 Inform the researcher that the text is ready

1.5 Translation done by the participant's colleague translator

1.5.1 Ask her colleague by email or in person to translate the document

1.5.2 Her colleague translator will translate the requested document and insert it into ECMD, change the status of the document and save the worksheet

1.5.3 Her colleague translator will inform her that the document is completed; she can proceed to the revision process for this document

1.6 Translation done by external translators

1.6.1 Send the document needed to be translated to an external translator by email in Microsoft Word format

1.6.2 The translated document is sent back to her in Microsoft Word format by email

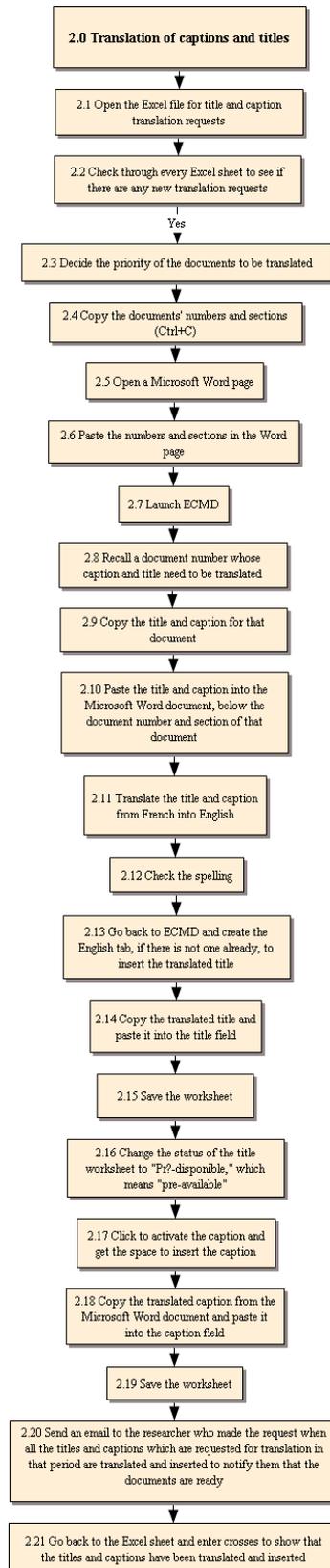
1.6.3 Download the document from the email

1.6.4 Save the document in the folder where the translations and revisions are kept

She also uses some marking functions like dots to show spaces between two words, and paragraph symbols on her document to be translated.

1.6.5 Begin the revision process for this document

TASK 2: TRANSLATION OF CAPTIONS AND TITLES



2.0 Translation of captions and titles

2.1 Open the Excel file for title and caption translation requests

This Excel file is shared between the researchers and the translators for translation requests.

2.2 Check through every Excel sheet to see if there are any new translation requests

2.3 Decide the priority of the documents to be translated

2.4 Copy the documents' numbers and sections (Ctrl+C)

2.5 Open a Microsoft Word page

2.6 Paste the numbers and sections in the Word page

Normally she will do many translations for the titles and captions at the same time because they are short texts.

2.7 Launch ECMD

2.8 Recall a document number whose caption and title need to be translated

2.9 Copy the title and caption for that document

2.10 Paste the title and caption into the Microsoft Word document, below the document number and section of that document

2.11 Translate the title and caption from French into English

She also uses some marking functions like dots to show spaces between two words, and paragraph symbols on her document to be translated.

2.12 Check the spelling

2.13 Go back to ECMD and create the English tab, if there is not one already, to insert the translated title

2.14 Copy the translated title and paste it into the title field

2.15 Save the worksheet

2.16 Change the status of the title worksheet to "Pré-disponible," which means "pre-available"

She needs to change the status of the audio-visual documents – photos, cartoons, facsimiles, videos and sounds – to "Pré-disponible", and notify the researcher once they are done. For the other types of documents she leaves them as they are (default status) and does not need to notify the researcher.

2.17 Click to activate the caption and get the space to insert the caption

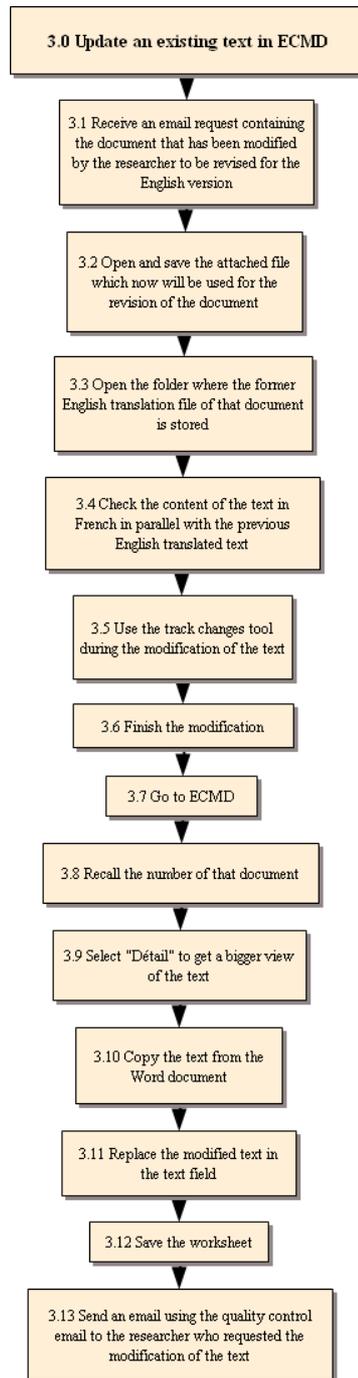
2.18 Copy the translated caption from the Microsoft Word document and paste it into the caption field

2.19 Save the worksheet

2.20 Send an email to the researcher who made the request when all the titles and captions which are requested for translation in that period are translated and inserted to notify them that the documents are ready

2.21 Go back to the Excel sheet and enter crosses to show that the titles and captions have been translated and inserted

TASK 3: UPDATE AN EXISTING TEXT IN ECMD



3.0 Update an existing text in ECMD

3.1 Receive an email request containing the document that has been modified by the researcher to be revised for the English version

3.2 Open and save the attached file which now will be used for the revision of the

document

3.3 Open the folder where the former English translation file of that document is stored

3.4 Check the content of the text in French in parallel with the previous English translated text

3.5 Use the track changes tool during the modification of the text

3.6 Finish the modification

3.7 Go to ECMD

3.8 Recall the number of that document

3.9 Select "Détail" to get a bigger view of the text

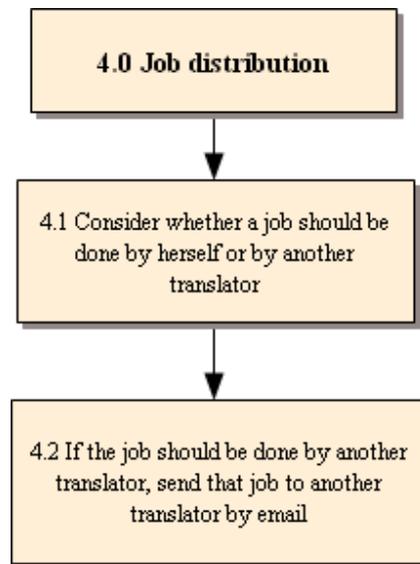
3.10 Copy the text from the Word document

3.11 Replace the modified text in the text field

3.12 Save the worksheet

3.13 Send an email using the quality control email to the researcher who requested the modification of the text

TASK 4: JOB DISTRIBUTION

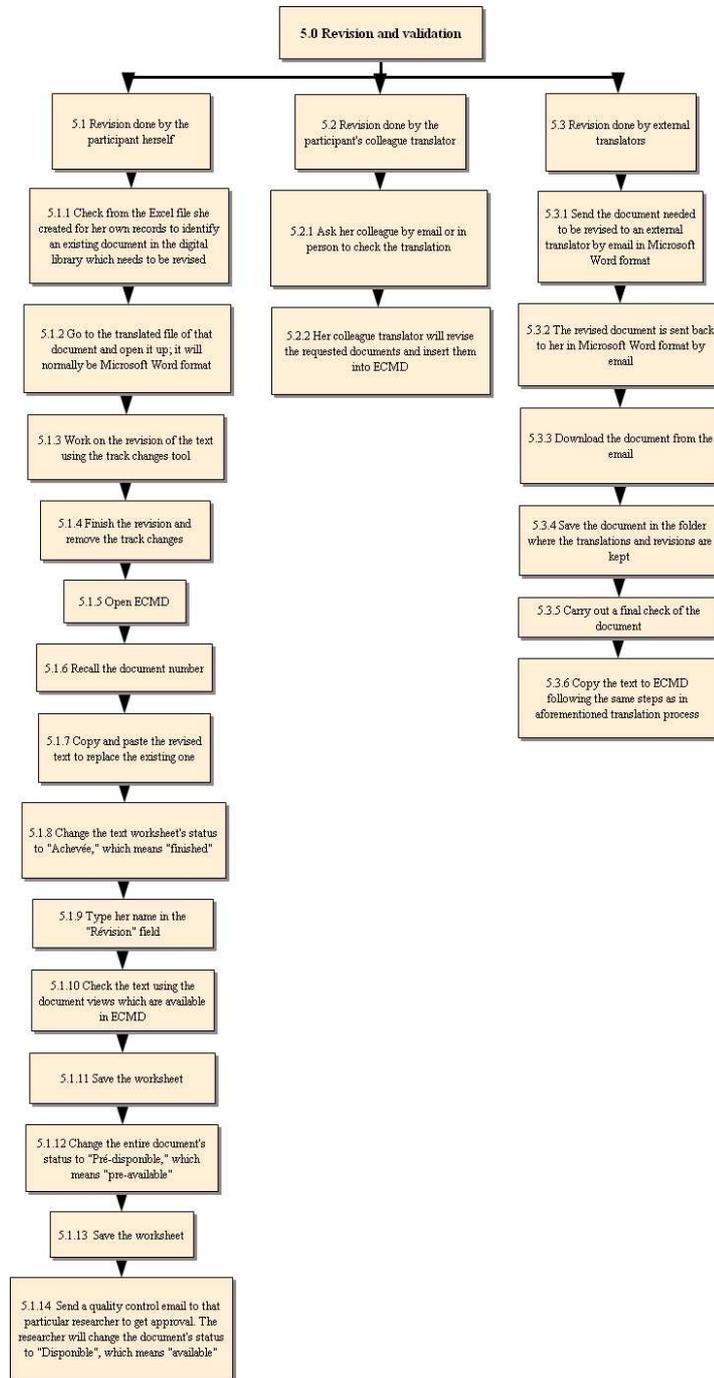


4.0 Job distribution

4.1 Consider whether a job should be done by herself or by another translator

4.2 If the job should be done by another translator, send that job to another translator by email

TASK 5: REVISION AND VALIDATION



5.0 Revision and validation

5.1 Revision done by the participant herself

5.1.1 Check from the Excel file she created for her own records to identify an existing document in the digital library which needs to be revised

5.1.2 Go to the translated file of that document and open it up; it will normally be Microsoft Word format

5.1.3 Work on the revision of the text using the track changes tool

5.1.4 Finish the revision and remove the track changes

5.1.5 Open ECMD

5.1.6 Recall the document number

5.1.7 Copy and paste the revised text to replace the existing one

5.1.8 Change the text worksheet's status to "Achevée," which means "finished"

5.1.9 Type her name in the "Révision" field

5.1.10 Check the text using the document views which are available in ECMD

5.1.11 Save the worksheet

5.1.12 Change the entire document's status to "Pré-disponible," which means "pre-available"

5.1.13 Save the worksheet

5.1.14 Send a quality control email to that particular researcher to get approval. The researcher will change the document's status to "Disponible", which means "available"

5.2 Revision done by the participant's colleague translator

5.2.1 Ask her colleague by email or in person to check the translation

5.2.2 Her colleague translator will revise the requested documents and insert them into ECMD

5.3 Revision done by external translators

5.3.1 Send the document needed to be revised to an external translator by email in Microsoft Word format

5.3.2 The revised document is sent back to her in Microsoft Word format by email

5.3.3 Download the document from the email

5.3.4 Save the document in the folder where the translations and revisions are kept

5.3.5 Carry out a final check of the document

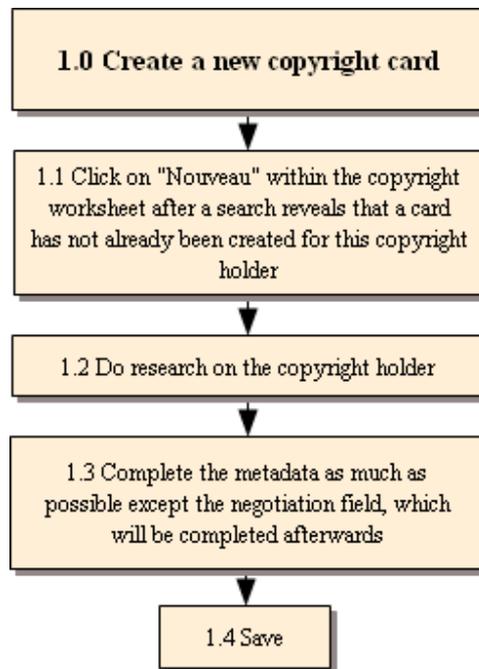
5.3.6 Copy the text to ECMD following the same steps as in aforementioned translation process

4.4 TASK DECOMPOSITION FOR THE LEGAL ADVISER

LEGAL ADVISER: L1

L1 works as a legal adviser for issues related to intellectual property. She has been working for the CVCE for approximately 5 and a half years. When she first took up the post, she worked on her own until another legal adviser joined her in September 2008. Therefore, she no longer uses ECMD for her daily tasks as much as the new adviser, because she has delegated various tasks. She is more responsible for administrative tasks at present, but she regularly supervises her colleague.

TASK 1: CREATE A NEW COPYRIGHT CARD



1.0 Create a new copyright card

1.1 Click on "Nouveau" within the copyright worksheet after a search reveals that a card has not already been created for this copyright holder

1.2 Do research on the copyright holder

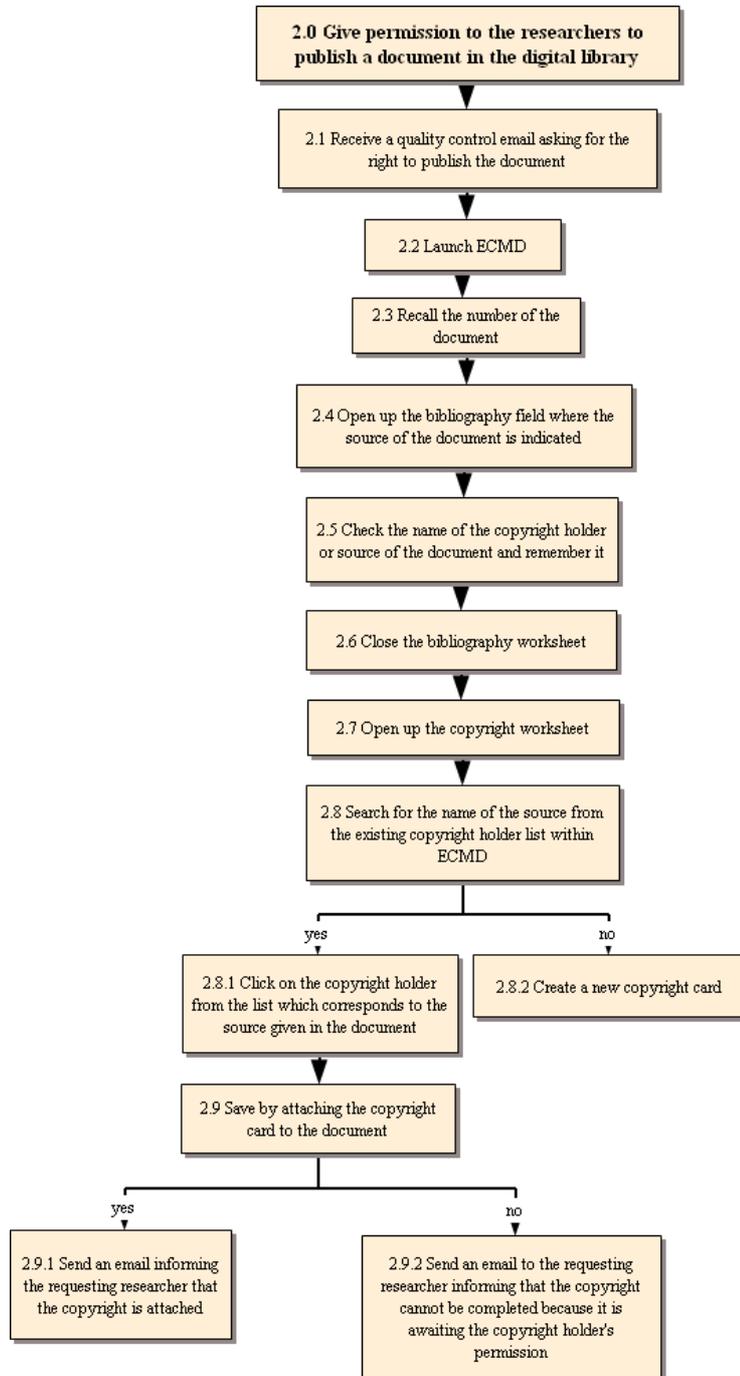
- Sometimes information about the copyright holder can be obtained on the internet.
- She will use Google or navigate through the websites of several institutions, which produce certain types of documents such as cartoons, that she knows of.

1.3 Complete the metadata as much as possible except the negotiation field, which will

be completed afterwards

1.4 Save

TASK 2: GIVE PERMISSION TO THE RESEARCHERS TO PUBLISH A DOCUMENT IN THE DIGITAL LIBRARY



2.0 Give permission to the researchers to publish a document in the digital library

2.1 Receive a quality control email asking for the right to publish the document

2.2 Launch ECMD

2.3 Recall the number of the document

2.4 Open up the bibliography field where the source of the document is indicated

2.5 Check the name of the copyright holder or source of the document and remember it

2.6 Close the bibliography worksheet

2.7 Open up the copyright worksheet

2.8 Search for the name of the source from the existing copyright holder list within ECMD

2.8.1 Click on the copyright holder from the list which corresponds to the source given in the document

2.8.2 Create a new copyright card

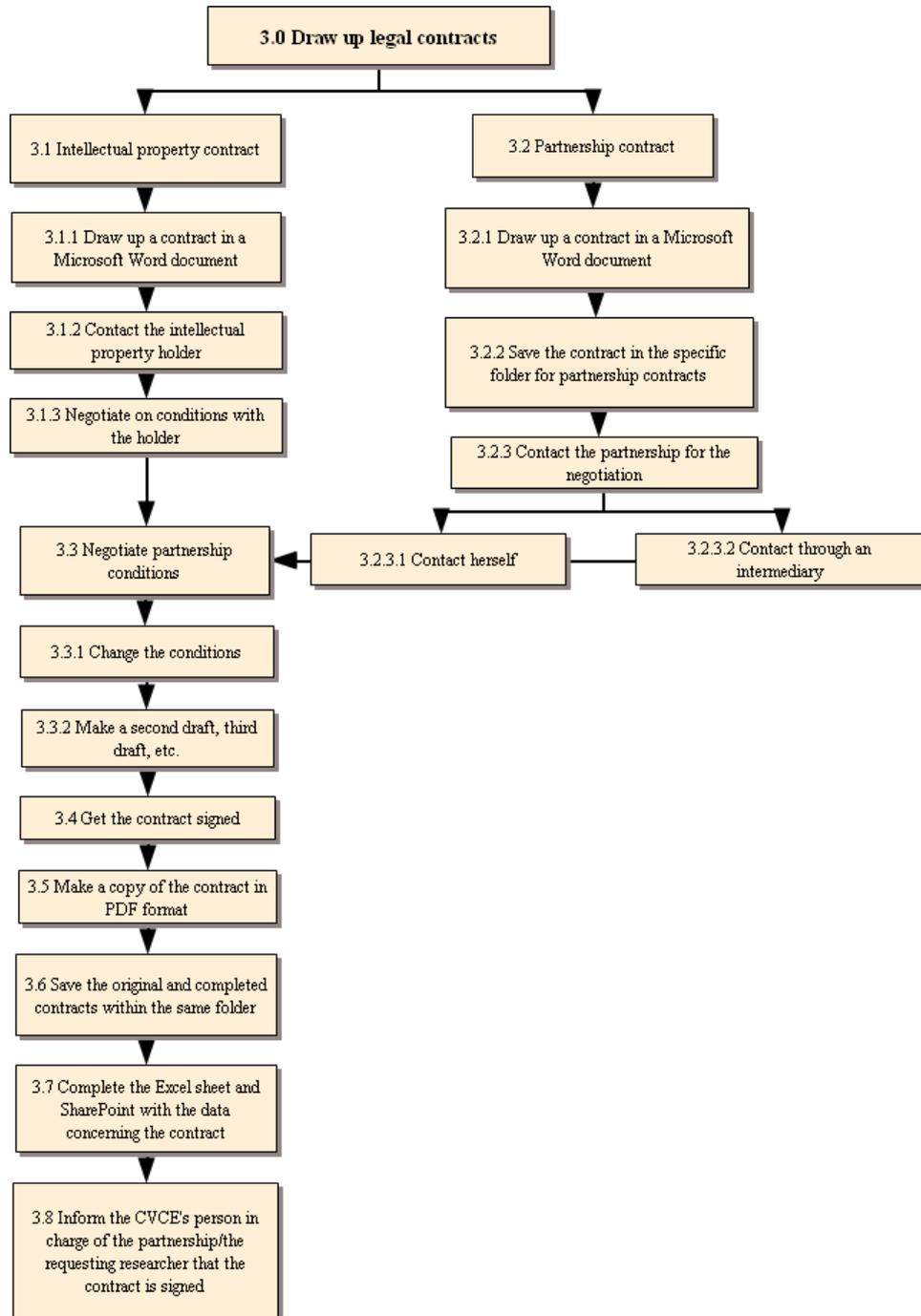
2.9 Save by attaching the copyright card to the document

2.9.1 Send an email informing the requesting researcher that the copyright is attached

2.9.2 Send an email to the requesting researcher informing that the copyright cannot be completed because it is awaiting the copyright holder's permission

This document's status will be "Non vérifié" whereas an authorised document will be "En cours"

TASK 3: DRAW UP LEGAL CONTRACTS



3.0 Draw up legal contracts

3.1 Intellectual property contract

3.1.1 Draw up a contract in a Microsoft Word document

3.1.2 Contact the intellectual property holder

3.1.3 Negotiate on conditions with the holder

3.2 Partnership contract

3.2.1 Draw up a contract in a Microsoft Word document

3.2.2 Save the contract in the specific folder for partnership contracts

3.2.3 Contact the partnership for the negotiation

3.2.3.1 Contact herself

3.2.3.2 Contact through an intermediary

The intermediary mostly refers to the CVCE employee who has a connection with the partnership person or organisation.

3.3 Negotiate partnership conditions

3.3.1 Change the conditions

3.3.2 Make a second draft, third draft, etc.

3.4 Get the contract signed

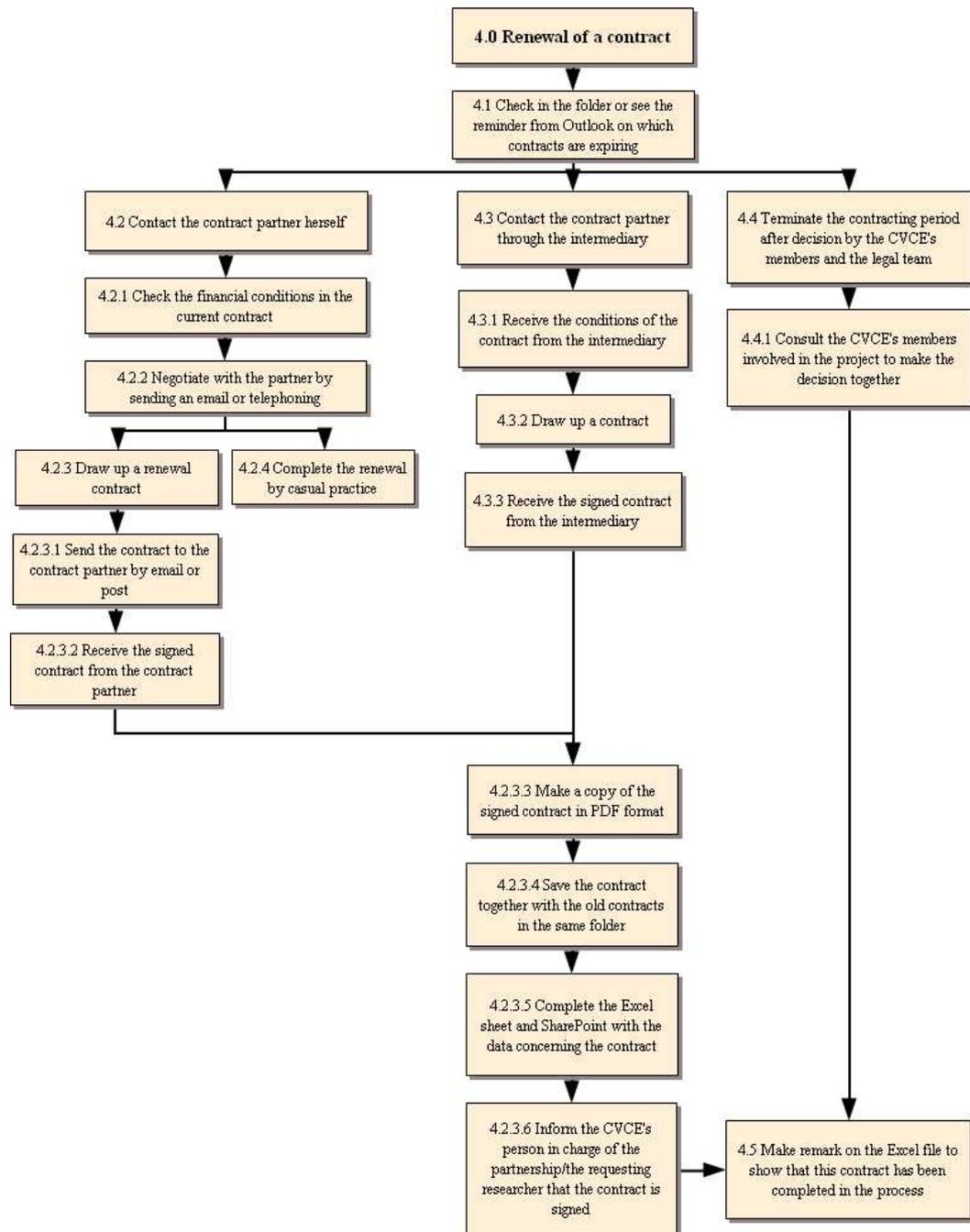
3.5 Make a copy of the contract in PDF format

3.6 Save the original and completed contracts within the same folder

3.7 Complete the Excel sheet and SharePoint with the data concerning the contract

3.8 Inform the CVCE's person in charge of the partnership/the requesting researcher that the contract is signed

TASK 4: RENEWAL OF A CONTRACT



4.0 Renewal of a contract

4.1 Check in the folder or see the reminder from Outlook on which contracts are expiring

- Every year in January, she will create a table file containing the details of each contract which has an expiry date of that year. These details are obtained from ECMD by making a search for the documents which have expiry dates of that year and copying them into a

Microsoft Excel document.

- Then she will save the dates in her Outlook calendar and set a reminder when the expiry dates are approaching.

4.2 Contact the contract partner herself

4.2.1 Check the financial conditions in the current contract

4.2.2 Negotiate with the partner by sending an email or telephoning

4.2.3 Draw up a renewal contract

4.2.3.1 Send the contract to the contract partner by email or post

4.2.3.2 Receive the signed contract from the contract partner

4.2.3.3 Make a copy of the signed contract in PDF format

4.2.3.4 Save the contract together with the old contracts in the same folder

4.2.3.5 Complete the Excel sheet and SharePoint with the data concerning the contract

4.2.3.6 Inform the CVCE's person in charge of the partnership/the requesting researcher that the contract is signed

4.2.4 Complete the renewal by casual practice

Sometimes there is no need for a written contract renewal for some partners, so she can renew the process immediately.

4.3 Contact the contract partner through the intermediary

Translation agencies, for example, will be contacted via the CVCE's translators.

4.3.1 Receive the conditions of the contract from the intermediary

4.3.2 Draw up a contract

4.3.3 Receive the signed contract from the intermediary

4.4 Terminate the contracting period after decision by the CVCE's members and the legal team

For some projects which have contracts for a certain period of time, when the duration is completed the stakeholders will make the decision to terminate the contract together.

4.4.1 Consult the CVCE's members involved in the project to make the decision together

4.5 Make remark on the Excel file to show that this contract has been completed in the process

4.5 SUMMARY

In this chapter the results of the decomposition of all the tasks of the participants in the three categories were described using HTA techniques including diagrams and written explanations of the steps in a task.

The final chapter of this study contains the conclusions and recommendations of the researcher.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The main problem of this study was stated in chapter 1 as the analysis of the tasks of DL content creators relating to a European DL, namely the CVCE's ENA. In the same chapter the relevant sub-problems were defined as the following research questions:

- What are the current tasks of the DL content creators both directly and indirectly involving ECMD?
- According to the DL content creators, what are the outcomes achieved in performing their tasks?
- What recommendations are put forward by the DL content creators in regard to their tasks and activities?
- What functionalities or features should be incorporated into the future DL content management system for the content creators' tasks?

Chapter 2, describing the background for the above-mentioned main research problem, was based on a literature study done by the researcher. The researcher explained the research methodology for this study, namely the use of HTA, in chapter 3. In the next chapter, chapter 4 of this thesis, the HTA decomposition of the current tasks of the DL content creators of ENA, both directly and indirectly involving ECMD, was presented. This included the outcomes of the specific tasks under observation.

In chapter 5 the information contained in the previous chapter will be combined with the recommendations made by the DL content creators in regard to assisting the effectiveness of their tasks and activities. The recommendations also include what functionality or features should be introduced to assist DL content management with particular reference to enhancing the performance of DL content creators in the completion of their tasks.

5.2 THE DL CONTENT CREATORS: RESEARCHERS

Five researchers who are DL content creators took part in this study. The researchers for ENA are highly esteemed experts in their particular fields in the European and global research context. These researchers keep abreast in their field of expertise in various ways such as following current events in the news, consulting relevant online resources (e.g. visiting the EU websites), keeping in touch with other researchers in their field, and reading newly published hardcopy and/or electronic articles and bulletins. In addition to the mentioned information resources, it was also noticed that researchers often use Google as search engine to find information on the internet.

General task-related observations made by the researcher are:

- Regular meetings between the researchers and their line manager take place to discuss tasks and task sharing. Tasks shared between researchers and translators are captured in an Excel document. SharePoint is mostly used by the audio-visual researcher, iconographic researcher and the audio-visual engineers.
- The way the researchers manage information on ENA (e.g. receiving and sending of data, organising files, updating of documents, etc.) is not uniform. Although the standard of their work is high, it was not clear if the individuality shown in information management plays any role in the outcomes of a task.
- ECMD is a powerful tool of ENA, but some functions are not always stable. For example, when researcher number two (R2) tried to move files from one folder to another it was not possible to move them as a unit. In other words, every file needed to be moved individually by the researcher. This is time-consuming and frustrating for the researcher.
- Some ECMD functions and buttons are no longer used by researchers, for example the black check mark at the top of the page when organising the DL structure. The reason for this is that these applications are outdated.
- Most data-checking procedures need to be done manually. It seems that metadata could not always be trusted when it was moved from one file to another, because the researcher always checked the metadata after it was moved against the metadata in the original folder.
- Similarly to the metadata, the synopses from the original folder also have to be transferred to the new folder manually.

The last four points mentioned, in particular, are some of the reasons why the CVCE is working to develop a new ECMD.

Recommendations made concerning each task are presented in table 5.1 and are related to the specific tasks of the researchers. Where necessary notes are added to explain a recommendation. Only tasks with recommendations are included.

TABLE 5.1
RECOMMENDATIONS IN REGARD TO RESEARCHERS

Task	Researcher(s)	Recommendations
Create a structure for a new topic in the digital library	Researcher four (R4) and Researcher five (R5)	<p>Frequently used search engines and other online sources need to be made easily accessible to researchers.</p> <p>A discussion channel/forum or similar communication tool (e.g. Yahoo messenger) should be considered to be implemented within the ECMD system for quick and easy communication between researchers to complement face-to-face and other communication methods. It will save time when researchers need to communicate when creating structures for new topics.</p>
Organising the digital library's structure	R2	<p>Outdated functions and buttons need to be eliminated in the current ECMD. There is no purpose for them and they may cause errors when used.</p> <p>Automatic information transfer (e.g. the synopsis to migrate automatically when the metadata is moved) should be part of the new ECMD functionality.</p>
Insert a new document into the DL's structure	R4 & R5	<p>Task-sharing communication among all stakeholders needs to be improved. Although SharePoint is well utilised between researchers and audio/video engineers, the training of all researchers in the use of this tool needs to be</p>

Task	Researcher(s)	Recommendations
		incorporated to ensure optimal application.
Create a text worksheet	R4 & R5	Various module functions (e.g. metadata module, caption module and bibliographic module), currently separate entities, should be consolidated on the same worksheet. This will ensure that the creation of a text worksheet is less complicated.
Create a diagram worksheet	R5	Current procedure entails the completion of a request form, which has to be attached to an Outlook email by a researcher and sent to the graphic designer. On completion of the task, the graphic designer will inform the researcher via Outlook email and request the final validation of the content. The researcher will then check the diagram using ECMD. To save time, an online request form to be completed by a researcher could be developed through the intranet or the ECMD system itself. A discussion forum, already mentioned under the first task, could also be a time-saving tool and enhance communication between stakeholders.
Create a map worksheet	R2	The recommendations made for the previous task are also applicable for the creation of map worksheets.
Create an audio/video worksheet	R3	Task-sharing happens through different platforms, namely SharePoint and Excel files. Task-sharing through one platform such as SharePoint may simplify and streamline this task so that it is more convenient for all stakeholders. This implies again training of all stakeholders in SharePoint. The consolidation of metadata space incorporating

Task	Researcher(s)	Recommendations
		the text worksheet and the object worksheet should be considered for greater efficiency and use of time.
Manage iconographic documents	R1	The recommendations made for the three previous tasks are also applicable. This includes the recommendation that all request forms be easily accessible online through the intranet or ECMD.
Quality control and validation	All researchers	A discussion channel/forum or similar communication tool, as mentioned under the first task, will also benefit discussions on the final validation of documents. Although quality control and validation are important aspects of the ECMD, quality control and validation criteria need to be documented to ensure consistency. The in-house rule for scientific content selection, including maps and diagrams, developed by the researcher team should also be implemented.
Prepare for an interview	R4	Improve communication among stakeholders in regard to questionnaire approval.
Organise an interview	R3	Interview guidelines are in the process of being developed. When completed, these guidelines should be made accessible to all stakeholders involved in interviews.

It emerged during the study that some researchers are more technologically advanced than others. For example, one researcher uses Zotero, a bibliographic management plug-in. Consideration should be given to the possibility of personalisation functions in the new DLMS.

5.3 THE DL CONTENT CREATORS: TRANSLATORS

Two translators (T1 and T2) who are DL content creators were involved in this research. The translators are highly qualified and experienced. The CVCE also offers internships for translators.

General task-related observations in regard to the translators made by the researcher are:

- Translation requests are received through various channels, e.g. a task-sharing Excel file, Outlook emails or personal requests. To check new requests the translators must access these different request formats. This is a cumbersome task.
- Documents to be translated also come in a variety of formats such as hardcopy documents, electronic articles or text in emails.
- Text for translation is copied into Microsoft Word (MS Word), and the Wordfast plug-in (an industry-leading translation memory environment) is most frequently the chosen tool to aid the translation process.
- A variety of sources are used by the translators, such as dictionaries in book format, online dictionaries, online thesauruses, as well as websites clarifying terminology used in the European context.
- Interestingly, Google is also the preferred search engine used to access information on the internet.
- There are no guidelines for information management and it was found that translators save the end-products differently. For example, T2 saves the original document together with the translated copy, a practice not followed by T1.
- Comments in regard to translation, in the same way as translation requests, are made through various channels, e.g. the different sheets of the task-sharing Excel file and emails.
- In-house translation guidelines have already been developed and are extensively used, specifically also by external translators.
- Translators working at the CVCE deal with several co-partners, namely freelancers and employees of translation agencies. Work sent to and received from co-partners is always in MS Word format. CVCE translators must then insert the text into ECMD.
- T1 gathers information on translation events and other work-related translation aspects as a reference tool when the annual report is compiled at the end of each year.

Recommendations made concerning each task are presented in table 5.2 and are related to the specific tasks of translators. Where necessary notes are added to explain a recommendation. Only tasks with recommendations are included.

TABLE 5.2
RECOMMENDATIONS IN REGARD TO TRANSLATORS

Task	Translator(s)	Recommendations
Translation, including translation of texts, captions and titles in ECMD	T1 & T2	<p>Requests for translation should be accessed in one place and not through several channels, e.g. through SharePoint.</p> <p>Automatic transfer of texts selected for translation in ECMD to MS Word will be preferable or the possibility of Wordfast embedded in the new DLMS. This will speed up the translation process, as copy and paste actions will be eliminated. Status changes made after translated texts are inserted into ECMD are not stable and automatic transfer of translations will rectify this problem area.</p> <p>All online sources used by translators should be easily accessible in the new DLMS system. Personalising the online resources will be preferable, because translators have their favoured sources.</p>
Update an existing text in ECMD	T2	It will be advantageous for translators if they can have access to two screens (not one split screen) when performing translation. Workflow will be enhanced and the translation easier to monitor.
Revision and validation	T1 & T2	<p>The in-house rules for translation should be easily accessible to all translators.</p> <p>Automatic notification or an alert service when a</p>

Task	Translator(s)	Recommendations
		<p>document has been completed will save time for translators.</p> <p>Stakeholders' work will be streamlined if shared documents are accessible at a specific point in the new DLMS. Currently shared files are sent back and forth as needed.</p> <p>If possible, incorporate a track changes function into the new DLMS.</p>
Job distribution	T1 & T2	An online tool to assist with record keeping and the retrieval of data will be an advantage.
Administrative tasks	T1	<p>An online budget management system to help keep track of budget expenditure for translation work is needed.</p> <p>SharePoint is not only excellent for sharing tasks among stakeholders, but also for helping to retrieve information for the compilation of the annual report. Training will need to be provided in the use of SharePoint.</p>

5.4 THE DL CONTENT CREATOR: LEGAL ADVISER

One legal adviser (L1) who is a DL content creator participated in the study. The CVCE's legal advisers are professionals involved in drawing up contracts used in connection with ENA and managing the intellectual property rights of the content published on the site.

General task-related observations in regard to the legal adviser made by the researcher are:

- Drawing up appropriate and effective contracts, as well as the accompanying negotiations, is time-consuming.
- The legal adviser has to deal with financial management in order to decide whether contracts should be entered into or renewed. She has created an Excel file to keep a record of the budget expenditure.
- Once a year the legal adviser creates a file containing details of the contracts which will expire in the course of that year.

Recommendations made concerning each task are presented in table 5.3 and are related to the specific tasks of legal advisers. Where necessary notes are added to explain a recommendation. Only tasks with recommendations are included.

TABLE 5.3

RECOMMENDATIONS IN REGARD TO LEGAL ADVISERS

Task	Legal adviser	Recommendations
Create a new copyright card and give permission to the researchers to publish a document in the DL	L1	<p>The legal adviser has to check through many steps in order to establish the existence of a specific card. It will save time if a more effective retrieval system in this regard is available in the new DLMS.</p> <p>Automatic notification or an alert service to the researcher when permission is granted to publish a document will save time. This service can also inform researchers when negotiations are interrupted.</p>
Draw up legal contracts	L1	<p>The legal adviser handles many files and contracts in the internal and external partnerships of the CVCE. These documents are currently stored in various places such as Excel and SharePoint. A new platform and/or tools to assist the legal adviser in managing and retrieving these files and contracts are necessary.</p>
Renewal of a contract	L1	<p>Assistance with the expiry dates of contracts is needed. An electronic alerting service in this regard will be welcomed.</p> <p>Training is needed for enhanced skills in SharePoint.</p>

5.5 LIMITATIONS OF THIS STUDY

In this study, rather than an in-depth analysis of individual participants' tasks, the HTA of the DL content creators of ENA presents an overview, and therefore a platform for further study, of such tasks. The HTA is focused on the tasks of ENA content creators and may not reflect the tasks of DL content creators in other institutions, who may well find similarities when considering their own tasks in light of this study.

5.6 CONCLUDING REMARKS

- Sustained evolution and investment are needed to maintain a DL (Barkstrom, Finch, Ferebee, & Mackey, 2002). A DL management system must therefore be “comprehensive and extensible” to support evolution (Zhang & Gourley, 2003).
- Note that no existing DL management system can perfectly and completely meet an institute’s current and future DL requirements (Lund, October 2001).

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APPENDIX 1

INTERVIEW AND OBSERVATION GUIDELINES

QUESTIONNAIRE GUIDELINE:

1. What is your position title?
2. How long have you been positioning in this job?
3. Can you tell me briefly about your job description please?
4. How often do you use ECMD?
5. What are the main tasks you do every day?
6. What are the tasks you do relating to the use of ECMD?
7. Can you explain the steps of how you will achieve your mentioned tasks together with the demonstration on the screen please?

* Other questions may arise depending on the interview circumstance *

OBSERVATION GUIDELINE:

1. The procedures while performing the task (how much time does it take to complete each task; how many steps have to be taken in order to reach the sub-tasks; other external tools/programs used besides ECMD in order to fulfil their tasks, etc.)
2. Their complaints, dissatisfaction, positive feelings toward the ECMD features and functions

APPENDIX 2

INTERVIEW AND OBSERVATION CONSENT FORM

Thesis title: *A task analysis of the content creators of a digital library: a case study of the CVCE's digital library*

Student's name: *Kanokporn NASOMTRUG*

Supervisors: *Pat DIXON and Monica VEZZOSI*

University: *University of Parma, Parma, Italy*

I, _____, understand that I am being asked to participate in an interview that forms part of Kanokporn Nasomtrug's required Master thesis in International Master in Digital Library Learning (DILL). It is my understanding that this interview will cover topics related to my work tasks and activities, especially those relating to using the in-house content management database – ECMD in order to make an analysis of those tasks and activities to help improvement of the CVCE's digital library development processes.

I have been given some general information about this Master project and the types of questions I can expect to answer. I understand that the interview will be conducted at my office and time that is convenient to me, and that it will take approximately one and a half hour of my time.

I understand that my participant in this project is completely voluntary and that I am free to decline to participate, without consequence, at any time prior to or at any point during the interview. I understand that, with my permission, this interview may be video recorded as well as the tasks I performed on a computer screen will be recorded.

I understand that the results from this interview will be used by the below-named student and may also be used for the CVCE's benefits to improve its digital library design. I also understand that my name and identity will remain confidential in any publications or discussions; and will not be used in any way that can identify me. All interview notes, or records will be kept in a secured environment and all raw data such as transcripts, notes, and video files will be destroyed or stored in a secured place after the completion of the research.

I have read the information above. By signing below and returning this form, I am consenting to participate in this project via a face-to-face interview and observation as designed by the below-named student.

Participant's name (please print): _____

Signature: _____

Date: _____

Please keep a copy of this consent form for your records. If you have other questions concerning your participation in this project, please contact me via email at kanok.nas@gmail.com or my supervisors at dixonap@aol.com, monica.vezzosi@unipr.it

Thank you for agreeing to participate in my Master thesis project.

Kanokporn Nasomtrug (Interviewer)

Interviewer's signature: _____

Date: _____