DIGITIZING PHOTOGRAPHIC COLLECTIONS WITH SPECIAL REFERENCE TO

THE UNIVERSITY OF THE WESTERN CAPE - ROBBEN ISLAND MUSEUM

MAYIBUYE PHOTOGRAPHIC ARCHIVE

by

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BELLVILLE : University of the Western Cape

DECLARATION

"I declare that *DIGITIZING PHOTOGRAPHIC COLLECTIONS, WITH SPECIAL*

REFERENCE TO THE UNIVERSITY OF THE WESTERN CAPE - ROBBEN ISLAND

MUSEUM MAYIBUYE PHOTOGRAPHIC ARCHIVE is my own work and that all the

sources I have used or quoted have been indicated and acknowledged by means of

complete references."

Signature ....*Lplomas*....................................

Date ....05 MARCH 2001.....................................

DEDICATION

Dedicated to my parents and grandparents.

LIST OF ACRONYMS

AACR2	Anglo American Cataloguing Rules, 2nd edition
ANC	African National Congress
BBC	British Broadcasting Corporation
CD	Compact disc
CD-R	Compact disc recordable
CD-ROM	Compact disc read only memory
EAD	Encoded archival description
ICOM	International Council of Museums
IDAF	International Defence and Aid Fund
MARC	Machine-readable cataloguing
PAC	Pan Africanist Congress
PC	Personal computer
RIM	Robben Island Museum
SABC	South African Broadcasting Corporation
SACP	South African Communist Party
USA	United States of America
UWC	University of the Western Cape

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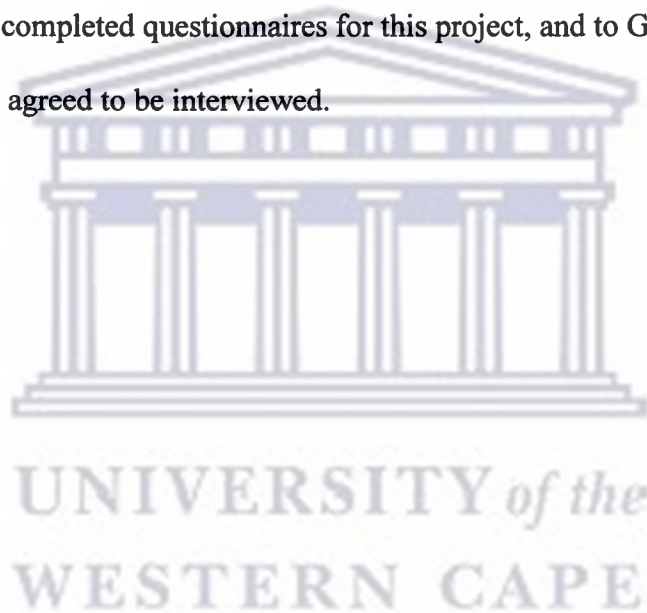
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WESTERN CAPE

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SUMMARY

Under the previous apartheid system in South Africa, the history of black South Africans and the history of South Africa's liberation struggle, were marginalised and ignored. Information dealing with resistance to the apartheid system was banned, and possession of these banned literatures was punishable by law. In the post-apartheid system, much of this banned documents were returned to South Africa, from outside of it's borders, and has found it's home in archival institutions which have dedicated it's work to communicating South Africa's largely unwritten histories. The Robben Island Museum is one such institution.

As a national museum, national monument and recently declared World Heritage Site, there is increasing pressure for the Robben Island Museum to develop and implement collection policies, which govern the way in which the museum and archival collections are accessed, to be able to give maximum protection to endangered collections, and to ensure that these are available for posterity. These policies are essentially restrictive, and within the context of an apartheid legacy which denied access to information, the museum is faced with the challenge of balancing the need for access with that of preserving the material in it's care.

Digitization of archival collections is dramatically changing the way in which access to these collections is being developed. This has been demonstrated in international institutions that have already entered the digital arena. In addition to providing a general overview on the status of digitization initiatives in photographic archives, this research has as it's central focus, the Mayibuye photographic archive of the Robben Island Museum. Important considerations of this study included issues relating to technical standards for digitizing the photographic collections, copyright and authenticity in the digital environment, and selecting

images for digitization. Technical standards included storage formats, computer hardware, metadata standards, scanning depth and resolution, which are all central to the management of the digitization process. Copyright was identified as the single most important factor in selecting images for digitization, and the formalisation of copyright agreements with photographers highlighted as the most important step which should precede digitization.

This research has also highlighted the important role that digitization can play in preserving historical photographic collections at the Mayibuye Archive, but has stated clearly that digitization on it's own cannot be considered in a preservation context.

This research used methods of descriptive research, which provided an overview of current practises in the Mayibuye photographic archive, as well as historical research which provided an overview of the origins and development of the photographic archive. Finally, methods of action research were used, since the process of implementing some of the recommendations has already begun. Data has been collected from unpublished reports of the Mayibuye Archive and the Robben Island Museum, as well as from structured interviews with staff of the photographic archive. A questionnaire sent to the largest user group of the photographic archive, namely corporate users, elicited user perspectives on possible digitization initiatives at the Mayibuye Archive. Finally, a number of secondary sources relating to digitization of photographic collections in international institutions were consulted.

Finally, the conclusion reached was that digitization is an important and viable method of increasing access to users, and more especially to those who are separated from the photographic archive by geographical distance. The majority of questionnaire respondents

believed that digitization would not only improve service delivery, but that it would also

increase their usage of the photographic archive. However, caution has also been suggested,

that digitization must not rule out other methods of improving access, for those who do not

have access to the right technologies.

CHAPTER ONE:

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The Mayibuye Centre for History and Culture in South Africa was established at the University of

the Western Cape in 1992, with it's main objective being to "restore aspects of South African

history which were neglected in the past" (Apartheid and resistance exhibition introductory text,

1994) and to "facilitate cultural creativity and expression in a way that encourages the process of

democratic reconstruction and change" (Mayibuye Centre brochure, 1994). Through its archival

programme, the Mayibuye Centre has collected a wealth of historical documentation which reflect

the anti-colonial and anti-apartheid struggles of the 20th century. At the core of the archival

collections are thousands of documents and photographs, as well as hundreds of hours of audio

tape and film recordings which were returned to South Africa after the unbannings [of political

organisations, such as the ANC, PAC and SACP] in 1992 (Josias, 2000).

On September 4, 1996, the cabinet of the first democratically elected government in South Africa,

approved recommendations by the Future of Robben Island Committee to declare the island a

national monument and a national museum, and recognising the importance of the Mayibuye

collections, to "request the University of the Western Cape (UWC) to agree to the incorporation of

the Mayibuye Centre ... in the new Robben Island institution" (Mallinicks, 2000: 3). The

subsequent incorporation of the Mayibuye Centre into the Robben Island Museum took effect

from 01 April 2000, with the signing of an agreement between the University of the Western

Cape (UWC) and the Robben Island Museum (RIM).

The agreement between UWC and RIM has resulted in a change in name from Mayibuye Centre to the UWC - Robben Island Museum Mayibuye Archives (for the purposes of this research, referred to as the Mayibuye Archives). Other significant changes outlined in the agreement between the two institutions (Mallinicks, 2000) include the following:

- The new Mayibuye Archives is managed by RIM as part of it's Heritage Resources and Environmental Management Department, but the archive will continue to be located at UWC.

- RIM oversees all policy decisions and technical matters pertaining to the Mayibuye Archives.

- A joint working committee, consisting of representatives from both UWC and RIM meets quarterly to oversee the implementation of the agreement, and to facilitate joint projects in respect of the Mayibuye Archives.

- The Mayibuye collections are on loan from UWC to RIM for a period of 99 years.

In effect, the Mayibuye Archive has been given the responsibility of managing the archival collections of RIM. This is not limited to the Mayibuye collections, but also includes research and archival collections which have been developed by RIM since it's establishment as a museum in 1997. However, the Mayibuye Archives has undergone few visible changes since its incorporation into RIM, and it is still comprised of a number of distinct archival components, namely:

- **A photographic archive:**

This includes more than 80 000 prints, 30 000 negatives and 4 000 transparencies documenting South African history from colonial occupation to the present with a specific focus on life under apartheid and resistance to it (Mayibuye Centre brochure, 1992: 10).

- **An historical papers archive**:

This includes more than 300 collections of both personal and organisational documents, reflecting the struggle for national liberation in South Africa. These papers and publications, many of which were banned under the apartheid government, comprehensively document the major political events and turning points of the 20th century in South Africa (Josias, 2000).

- **An oral history and sound archive:**

The oral history and sound collections number more than 2000 recordings of speeches and interviews with political activists, as well as recordings of political events and freedom songs.

- **A film and video archive:**

This includes more than 1000 completed productions documenting South African history and culture, as well as more than 6000 recordings of unedited footage and news productions. Many of these were smuggled out of South Africa during the apartheid years, and used internationally to rally support for the South African liberation movement.

- **A visual art collection:**

This collection consists of the many exhibitions curated by the Mayibuye Centre in the past, original artworks (including paintings, etchings and sculptures), resistance posters, banners and political cartoons.

- **An artifact collection:**

This is a growing collection of historical objects and memorabilia which were used as forms of political protest during the anti-apartheid struggle. The collection also includes more than 3000 objects which were left on Robben Island by the prison authorities.

In the past, the Mayibuye Centre's programmes of exhibitions and outreach activities were drawn from this vast array of material. It is expected that the Mayibuye collections, together with the research collections being developed on Robben Island, will form the core of the

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educational programmes and exhibitions of RIM. As a national monument, and a recently declared World Heritage Site which, in it's mission statement, has committed itself to "conserving and managing the natural and cultural heritage and resources of Robben Island" (Robben Island Museum Action Plan, 1998: 14), there are increasing demands on RIM to implement collection policies which conform to international museum and archival practises. Conservation and preservation of the museum's historical resources are therefore central to its archival programme, and this places a significant challenge on how best to make the content of these collections as widely accessible as possible. A major part of this challenge lies in the advent of new technologies, such as digitization, which has potential answers for many of the problems facing the museum and archival profession.

For collections management purposes, the archival collections of RIM are managed as separate units. While roughly 70% of the collections are housed at UWC, research collections including a resource centre, institutional archive, artifacts and archaeology are being developed on Robben Island. Within this context, digitization is a particularly attractive option. It has the capacity to provide a virtual linkage for all of these collections, and thus bring together and communicate elements of the collections that otherwise may not have been visible or as clearly understood. According to Smith (1998: iv), the promise of the technology is that, although digital access is not a replacement for access to the original, it nonetheless can provide significant new service options to a wide variety of users that go well beyond the traditional scholarly audience.

A research paper entitled, 'Digitizing the Mayibuye Centre's collections using both optical discs and on-line networks' (Josias, 1997), aimed to establish a framework within which the digitization of the Mayibuye archival collections should take place, using both optical discs

and on-line networks. Even though this study concluded that digitization, both on optical disc and on-line networks, had a special place within the information technology framework of the Mayibuye Centre, one of its key recommendations was that the digitization of different media types be examined separately, for contribution to a holistic preservation plan, and to determine the key factors and issues involved in the digitization of different media types. The study also recommends that copyright issues for electronic documents be comprehensively researched, to prevent an infringement of copyright laws, and to ensure that the Mayibuye collections are not exploited by copyright infringements (Josias, 1997: 49).

This research can be seen as an extension of the above-mentioned study, since it is dedicated solely to the factors involved in digitizing photographic collections, using the Mayibuye photographic archive as a point of reference.

1.2 PROBLEM STATEMENT

Under apartheid the majority of South Africans were written out of history. Documents which told the story of South Africa's colonial and apartheid past were labelled as subversive by the apartheid government, and were destroyed or banned. Rigorous repressive laws were used to silence the liberation movements of South Africa and Namibia, and individuals caught in possession of banned documents faced arrest, detention and torture by the special branch of the South African police ... Only after decades of struggle, culminating in the unbanning of political organisations and abolishment of apartheid laws in the early 1990s, and the country's first democratic elections in 1994, was it possible for anti-apartheid documents to be made fully accessible inside South Africa's borders (Josias, 2000: 1). It is for these reasons that accessibility to its unique collections of historical material, which reflect South Africa's anti-apartheid struggles, is such a key concern for the Mayibuye

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Archive. In the past, the Mayibuye Centre successfully explored various ways of broadening access to its historical collections, including a number of outreach activities initiated between 1992 and 2000. This responsibility now rests with the Mayibuye Archive, under the strategic direction of the Robben Island Museum. One such outreach activity, which was partially explored by the Mayibuye Centre in its CD-ROM production programme, uses the medium of digitization projects, which it is believed, will maximize accessibility to, and increase understanding of the content of the archival collections. However, before this option can be further considered, and as recommended by Josias (1997: 49), the processes involved in the digitization of special collections, such as photographs, must be fully investigated and clarified, to ensure a successful digitization programme designed to produce positive results for the institution and its researchers.

1.3 PURPOSE OF THE STUDY

The purpose of the study is to contribute to the evolving information technology framework of the Mayibuye Archive, by determining the requirements for digitizing photographic collections. Even though this research focussed on the photographic collections of the Mayibuye Archive, the overall vision is one in which (a) a significant percentage of the collections will be transformed into an interactive environment, (b) where certain types of material (e.g. photographs, video, audio, historical papers) will be digitized for both preservation and increased access, (c) whilst simultaneously developing on-line databases of collections, and (d) where information will be presented to its audiences in new and creative formats which allow for maximum impact on these audiences.

1.4 NATURE OF THE STUDY

This study employed a combination of different research methods. In describing current practices in the photographic archive, the study used methods of descriptive research. This proved to be helpful in identifying the strengths and weaknesses of the current situation, and yielded important findings as to how digitization can best be used in this context. According to Bruce Francis (1978: 32), the purpose of this form of research is to provide a detailed and accurate picture of the phenomenon as a means of generating hypotheses and pinpointing areas of needed improvements.

The study also adopted methods of action research, since it involve[s] the researcher [in] implementing a programme designed to produce positive results (Bruce Francis, 1978: 34).

Historical research, which, according to Busha and Harter (1980: 92), facilitates our understanding of when, how and why past events occurred , proved useful when examining the development of the photographic archive, the origins of the collection, and the context within which access to the collection has been developed.

1.5 RESEARCH PROCEDURE

The study made use of historical evidence such as previous Mayibuye Centre reports, user statistics and all available documentation on the activities of the photographic archive from 1992 to the present. As a supplement to this written documentation, structured interviews were conducted with the two staff members of the photographic archive. One of these was a telephone interview. The writer, as Collections Coordinator for the Robben Island Museum, and former Audio-visual Archivist and Collections Coordinator for the Mayibuye Centre, also contributed significantly, as to how the photographic archive can best use digital technology

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to fulfil the institutional mission of increasing access and democratizing it's holdings.

A questionnaire, aimed at eliciting responses on the advantages and/or disadvantages of digital technology, was sent to the largest user group of the photographic archive, namely corporate users. The users were selected using random sampling, based on the current filing system of clients of the photographic archive.

The study also makes use of secondary data, and in so doing has drawn on the reports and experiences of museums, archives and libraries who have already entered the digital arena. It has benefited from the findings of the number of different task forces set up internationally, to demystify the processes involved in digitization.

1.6 SIGNIFICANCE OF THE STUDY

The most significant feature of this study is that it has paved the way for the digitization of the photographic collections of the Mayibuye Archive, and in so doing has already contributed to (a) the preservation of these important historical resources (b) increased access and thus a democratization of these resources.

1.7 RESEARCH QUESTIONS AND OBJECTIVES

The primary research objectives of this study are as follows:

- to assist in the creation of a policy document, or guidelines for digitization initiatives at the Mayibuye Archive;

- to outline the concerns which the Mayibuye Archive, and other heritage institutions should be addressing in the digital age; and

- to outline important factors to be taken into account and considerations to be made, for the success of any digitization initiatives.

This research paper therefore attempts to answer the following:

- Why digitize?

- Who are the different target audiences of the photographic archive, and what are their views on digitization?

- Does the Mayibuye Archive own copyright of the collections it wishes to digitize?

- How can the Mayibuye Archive protect its own intellectual property rights in the process of digitization?

- Can the Mayibuye Archive ensure that images are not manipulated once in digital form, and can it therefore protect the authenticity of images?

- How does the Mayibuye Archive select what photographs to digitize?

- Can digitization be considered as a preservation medium within the context of the Mayibuye photographic archive?

- How can digitization increase access to the photographic collections?

- What technical standards should the Mayibuye Archive consider in the digitization of it's photographic collections?

1.8 DEFINITION OF TERMS

The following is a glossary of some of the key terms and concepts used in this study:

1.8.1 CD-R

This stands for Compact Disc Recordable. Like CD-ROMs it is used for distributing and storing large quantities of data. The major difference is that data can be added to a CD-R at any time, unlike CD-ROMs which cannot be updated.

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1.8.2 CD-ROM

This stands for Compact Disc Read Only Memory. It is used for the distribution [and storage] of large quantities of data (ICOM News, 1996: 12), and it allows for the convergence of text, graphics, images, video, sound, animations and a range of media types. One 12 cm disc is capable of storing 650 megabytes of data (http://cuiwww.unige.ch/OSG/info/multimediainfo/info/cd.html).

1.8.3 Collections management

This essentially refers to an established institutional procedure which guides the development, documentation, care, loan, use, insurance and disposition of museum and archival collections. These procedures are often developed within the framework of a country's national legislation on the management of heritage resources.

1.8.4 Conservation

According to Edson and Dean (1996: 94), "conservation is the technology of preserving collections." Bandes, as referred to by Edson and Dean (1996: 95), says that "the conservation of collections takes place on four different levels. The first level treats collections as a whole to maintain them in an unchanging state by providing controlled environments and adequate housing for the objects ... The second level is object preservation, which has as its primary goal the preservation and retardation of further deterioration or damage to the object. The third level is actual conservation restoration; action taken to return a deteriorated or damaged artifact as nearly as is feasible to its original form, design, color and function ... The fourth level is in-depth scientific research and technical examination of the object." This essentially means that conservation is a process which is used to care for collections.

1.8.5 Digitization

Digitization refers to the act of creating a digital object out of a physical object. This might be done by scanning, photographing or using digital technologies to migrate the object from its analogue form to digital form. Digital objects created in this way are copies or surrogates of the physical object and are normally located on a storage device, such as a hard disk [or optical disc] and accessed via a computer. The term digital object also refers to information or files created electronically, such as word processed documents ... A digital object can then be edited, manipulated, emailed across the world, deleted, copied and inserted into other files, world wide web pages and publications (Digitisation Forum Online: http://www.digitisation.net.au/about_dig1.html). Digitization therefore simply refers to the process of converting different media types (text, photographs, video, animations, sound etc.) into electronic format, making use of optical technology, on-line networks and a range of other standards.

1.8.6 Intellectual property

"The term 'intellectual property' covers all forms of rights (generally termed proprietary rights) that enable a person or company to prevent others from conduct which would give them an unfair trade advantage" (Von Seidel, 1998: 10). This applies to the archive and museum world, and concerns protecting and managing the use of archival documents and information, in accordance with intellectual property laws.

1.8.7 Internet

This is a global, on-line computer network connecting millions of users. Services include e-mail and conferencing, as well as the ability to access remote databases and send and retrieve files (ICOM News, 1996: 12).

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1.8.8 Lossless compression

This refers to a data compression technique in which no data is lost. For most types of data, lossless compression techniques can reduce the space needed by only about 50% (Webopedia, http://webopedia.internet.com/TERM/l/lossless_compression.html).

1.8.9 Metadata

Metadata refers to the information associated with a digital image. This includes computerized catalogue records, external finding aids and technical information about the scanning process. Ideally, these should be linked to the digital image.

1.8.10 Multimedia

This refers to the integration of heterogeneous data [including text, sound, graphics, photographs} on a single computer medium that combines audio and video facilities to create an interactive application (ICOM News, 1996: 12).

1.8.11 Network

This refers to two or more computers, as well as other forms of technological hardware, being linked together via telephone lines, satellite links or other forms of appropriate telecommunication standards.

1.8.12 On-line

This refers to a connection to an electronic network [e.g. the Internet] (AAAS, 1996: xiv). It is a network or service which is accessible from a remote computer (ICOM News, 1996: 12).
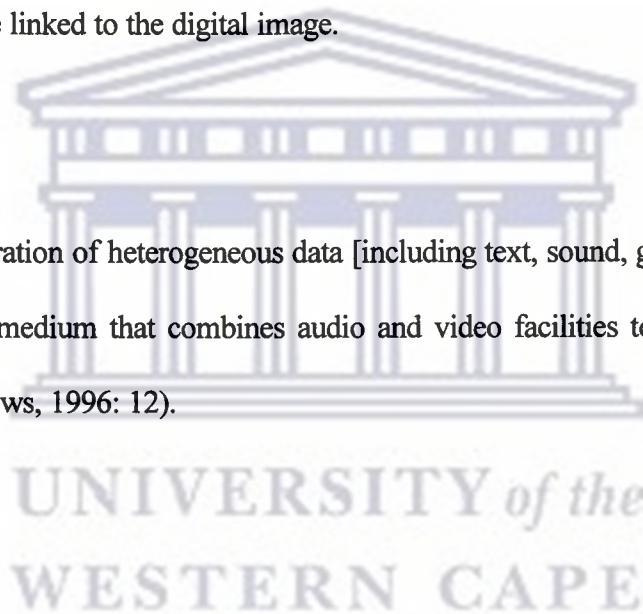
1.8.13 Optical Discs

These are laser discs capable of storing large quantities of data, including CD-ROM, CD-R, writeable CD's and Photo CD.

1.8.14 Photo CD

This is a CD format developed by Kodak Photo Company, which is used solely for the purposes of storing high resolution photographic images.

1.8.15 Preservation

This refers to the activity of identifying potential risks to museum, archival and library collections, and implementing strategies to protect collections from both internal and external risks. It involves the first two levels of conservation, as outlined above, with the ultimate goal of preventing deterioration so that museum, archival and library collections can be available for posterity.

1.8.16 Resolution

This involves controlling the colours that images are scanned at. According to the Yale style manual (http://info.med.yale.edu/caim/manual/graphics/display_primer.html), "the computer's operating system (Mac, Windows, etc.) organizes the display screen into a grid or x,y coordinates like a checkerboard. Each little box on the screen is called a 'pixel' (short for 'picture element')." Resolution involves controlling the colour of each pixel on the screen.

1.8.17 Writeable CD

This is a CD format, which operates in a similar manner to CD-ROM, CD-R and Photo CD. The essential difference is that whereas the aforementioned formats do not allow for the editing of data on the discs, writeable CDs allow for the editing and manipulation of stored data.

1.8.18 Zip Discs

Zip discs operate in the same way as computer floppy discs, but has the capacity to store larger quantities of data. Zip discs store up to 250MB of data.

1.9 SCOPE AND LIMITATIONS

The main focus of this research is the digitization of the photographic collections of the Mayibuye Archive, on both optical discs and on-line networks. Even though this research dealt briefly with media (optical or on-line) for the digitization of photographs, it has not provided an in-depth account of technical standards for digitization.

The unique characteristic of technology is that it is constantly changing. This represents one of the biggest limitations of this study. Even though the study embraced and considered the latest technologies and digitization developments as far as possible, there is no guarantee of always being at the cutting edge.

1.10 LITERATURE REVIEW

Having reviewed the literature, it is clear that digitization is still in a research and development phase, and even more so in the field of museums, libraries and archives. A number of reports relating to different aspects of digitization are being produced internationally, where most of the cutting edge research is taking place. The secondary sources consulted for this study are mainly recent reports on digitization initiatives in the USA.

In a 1998 report, Stephen Ostrow focuses on historical photographic collections, and explores the issues and problems that institutions must address when undertaking digital conversion projects (Smith, 1998: 3). In this report, Ostrow examines a range of factors, including the utilisation of

historical photographs, the advantages and disadvantages of digitization, and in the final instance makes important and sound recommendations relating to the selection of images for digitization.

In a more recent report by Abby Smith (1999: 3), the author cautions against using digitization as a preservation medium, since it has not yet been tried and tested in this context, and may still take many years before it becomes an authoritative option for preservation. Smith does, however, reiterate the widely held view that digital resources are best used when facilitating access to information.

A Visual Materials Task Force (1999) facilitated by the American Council of Learned Societies and the Council on Library and Information Resources set out to establish the needs and expectations of users of visual resources, mainly scholars. According to the final report, the discussions focussed on digitization. This report raises important concerns about digitization, and provided a point of reference for a questionnaire distributed to users of the Mayibuye photographic archive.

Howard Besser has produced extensive writings on digitization in general, and its effect on photographic collections in particular. In an article entitled 'The changing role of photographic collections with the advent of digitization', Besser explores areas like the possible erosion of authority of the museum and its curators as more and more people access representations of museum objects without entering the site of the museum itself. He identifies critical issues that will emerge concerning authorship and authenticity. He also begins to examine issues related to the commodification of images (http://www-personal.si.umich.edu/~howardb/Papers/garmil-eastman.html).

Hazen, Horrell and Merill-Oldham provide useful information relating to selecting materials for digitization. Their report is based on two factors, (a) the nature of the collection, and (b) the context within which the institution operates.

A number of other articles which deal with the issues of digitizing photographic collections have been consulted. These articles cover (a) digitization as a preservation medium; (b) technical standards for digitization of photographs; (c) copyright and protection of digitized images; (d) digitization formats such as Photo CD and the Internet; (e) the income generation capacity of digital resources; and (f) the authenticity of digitized images. Primary documentation has been consulted in unpublished reports of the Mayibuye Centre and the Robben Island Museum.

1.11 DEMARCATION OF CHAPTERS

This study is presented as five chapters. Chapter One presents the reader with an introduction and background, and identifies several key research questions which the study has attempted to provide answers for.

Chapter Two deals with digitization as a preservation medium, and digitization as a method of increasing access to photographic collections. The issue of digitization as a preservation medium is one of huge debates in the archive, museum and library world. This chapter takes a closer look at some of these debates, and assesses whether these arguments are applicable in the context within which the Mayibuye photographic archive operates. Most of the current literature on the subject, suggest that digitization is at its best when providing access to material. This chapter further examines what makes digitization such a viable option for this purpose, and how this can benefit the work of the Mayibuye photographic archive. This chapter, therefore, provides the reader with a concise understanding of why, or why not to, digitize.

Chapter Three deals with the direct issues which institutions have to address when embarking on digital projects. This includes technical standards for the digitization of photographic material, and the chapter therefore deals briefly with scanning techniques and requirements, the metadata or databases which accompany digital images and the different formats, such as Photo CD and the Internet, on which digitized images are stored. This chapter also addresses the issue of copyright, since it is becoming increasingly difficult to protect intellectual property rights within the digital environment. Finally, the chapter aims to establish guidelines for the selection of photographs for digitization, within the context of the Mayibuye Archive. This is a potentially difficult task when working with large collections and limited funding, and this section of the study draws on the experiences of other institutions with large photographic collections.

Chapter Four provides a detailed presentation on the current workings of the Mayibuye photographic archive. This includes an analysis of the interviews conducted with photographic archive staff, as well as a presentation and analysis of questionnaires sent to users of the photographic archive. The chapter also makes use of unpublished reports of the Mayibuye Centre, as well as the experiences of the writer as the Collections Coordinator of the Robben Island Museum.

Chapter Five concludes the study. It ensures that the research questions posed in Chapter 1 have been adequately addressed, and makes recommendations based on the evidence contained in the primary and secondary data consulted for this study.

CHAPTER TWO:

DIGITIZATION AS A METHOD OF PRESERVATION AND ACCESS TO

HISTORICAL PHOTOGRAPHS

2.1 INTRODUCTION

The terms 'preservation' and 'access' are widely referred to within the archival profession, and it is seldom that one hears either being mentioned in isolation of the other. For most archival institutions, the two go hand in hand, and represent the core of archival work. It encapsulates, in a nutshell, the reasons for archiving historical documents. While it is clear from the available literature that digitization holds definite advantages in terms of creating access to information, there are questions about how it can be used to serve the preservation function in archives, and whether it can be used as a preservation medium at all. These questions raise further complex preservation issues, which are examined in this chapter. Smith (1999: 3) goes as far as to say that "digital resources are at their best when facilitating access to information and weakest when assigned the traditional library responsibility of preservation." This chapter takes a closer look at what this means for photographic archives.

2.2 PRESERVATION

2.2.1 Introduction

In order to assess the viability of digitization as a preservation method in photographic archives, it is necessary to understand a range of preservation factors and problems which institutions are faced with, and the alternatives that have been used to address some of these problems.

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Ostrow (1998: 9) has highlighted some of the most pressing concerns for photographic preservation, which include:

(i) the degradation of photographs, as a result of it's physical composition;

(ii) deterioration due to the use of previously acceptable preservation techniques, which were in fact harmful;

(iii) sensitivity of certain materials to light;

(iv) awkward handling of oversized materials by researchers and staff;

(v) the inherently fragile nature of certain materials, such as glass plate negatives; and

(vi) damage from continuous handling and mishandling by researchers.

These problems are exacerbated by the fact that since the nineteenth century, a range of different photographic processes, each with its own unique characteristics, have been used. This means that there are significant differences in the patterns of deterioration, which a conservator must be able to identify before an appropriate preservation method can be implemented (Photograph conservation, 1996: http://www.nedcc.org/photo.htm). Common preservation procedures for photographs have traditionally included:

(i) Surface cleaning, which involves removing dirt from the surface of the photograph. It is a delicate process, since the surface may be altered if an incorrect procedure is followed;

(ii) Controlled aqueous treatments, used to remove acidity from the photographic paper, and to reduce discoloration of the image;

(iii) Stain reduction, which normally takes the form of bleaching, and is a time consuming and delicate process;

(iv) Removal of poor quality secondary supports, which involves detaching mounting boards or paper supports which have become acidic or brittle;

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(v) Structural repairs, which involves mending tears and creases in photographs, using appropriate preservation techniques; and

(vi) Remounting of photographic prints, including the manufacture of new support mounts for photographs

(Photograph conservation methods, 1996: http://www.nedcc.org/pglos.htm).

In cases where these kinds of preservation treatments are not possible, as in the case of the Mayibuye photographic archive, duplication of historical prints and negatives seems to the most attractive option.

However, preservation programmes for historical photographs, do not simply end with the adoption of the above-mentioned techniques. From a collections management perspective, it is critical that these or other techniques are incorporated into a broader institutional policy on preservation, to further avoid endangering original material. The ideal contents of a policy on preservation are too numerous to mention in this paper. However, it is important to bear in mind that, "once the photographs have been treated or duplicated, proper storage materials are essential to insure a long life for your image. Each photograph needs its own individual enclosure to protect it from handling damage, dust and environmental pollutants" (Photograph conservation, 1996: http://www.nedcc.org/photo.htm). In addition to this, caring for archival photographs also involves controlling temperature and relative humidity, air pollution and dirt, light levels, handling and storage systems (Care of photographs, 1999: http://www.nedcc.org/phocar.htm).

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2.2.2 The use of digitization as a preservation method

2.2.2.1 Introduction

According to Conway (1999: http://www.nedcc.org/tleaf55.htm), the preservation applications of digital technology in archives focus on three key areas, namely protection of originals, representing originals, and transcending originals. The first key area identifies the value of digitization as a means of decreasing handling of the original archival document, and in so doing enhancing its lifespan. The other two areas deal with the use of digital versions as replacements for original archival documents, shifting the emphasis to include preservation of the digital images. The preservation of digital images is especially challenging in the absence of clearly defined standards for digital preservation. The key issues are dealt with in the sections which follow.

2.2.2.2 Protection of originals

Knoll (1998: http://digit.nkp.cz/CD-ROM/ELAG.htm) has emphasised that digitization cannot safeguard physical objects in a literal sense, but that it can contribute to less frequent handling of the originals. This appears to be a generally accepted view on the benefits of digitization. According to Conway (1999: http://www.nedcc.org/tleaf55.htm), this is the most commonly used application of digital technologies in archives and libraries. It allows for the creation of digital copies of sufficient quality, which can be used as a ready reference. This eliminates the need for casual browsing through original sources, limiting access to originals, and therefore meeting archival preservation requirements. In this instance, the digital reference files assist researchers to identify the original documents which they would need to access for closer study.

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2.2.2.3 Representing originals

In this case, the digitized image provides such a detailed representation of the original, that there is no need for the researcher to access the original document (Conway, 1999: http://www.nedcc.org/tleaf55.htm). Ostrow (1998: 13) says that the degree to which digital access is an improvement over using originals depends on the visual characteristics of the originals and the nature of the research being conducted. For researchers who require advanced levels of detail in the images they are researching, "high resolution [digital imaging] systems that strive for comprehensive and complete content" are viable (Conway, 1999: http://www.nedcc.org/tleaf55.htm). While these high resolution systems further decrease handling of the originals, it adds another dimension to the preservation debate, namely preservation of the digital version. This is dealt with more extensively later in this chapter.

2.2.2.4 Transcending originals

Through the use of high resolution digital images, it is possible to access information and details that are unclear when working with originals. It includes imaging that uses special lighting to highlight details caused by ageing, use and environmental damage (Conway, 1999: http://www.nedcc.org/tleaf55.htm). There is no doubt that the factors highlighted by such systems support archival preservation by helping to identify appropriate treatments. However, it also assists researchers to identify the value of the image as an artifact, and thus 'transcends originals.' The preservation of the digital document therefore, once again, assumes significant meanings.

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2.2.3 The problems and potentials of using digitization as a preservation medium

A report by the Commission on Preservation and Access (1996: 2) has identified two key problems with using digitization as a means of preservation: (i) "Reading and understanding information in digital form requires equipment and software, which is changing constantly and may not be available within a decade of its introduction"; and (ii) "Rapid changes in the means of recording information, in the formats for storage and in the technologies for use threaten to render the life of information in the digital age as 'nasty, brutish and short'." This serves as a warning against possible future situations where most hardware, for example, will not be capable of reading current storage media such as CD-ROM and CD-R. The major limitation, according to Hodge (2000: http://dlib.org/dlib/january00/01hodge.html), is that "while there are traditions of stewardship and best practices that have become institutionalized in the print environment, many of these traditions are inadequate, inappropriate or not well known among the stakeholders in the digital environment." This in effect means that there is a lack of defined standards for digital imaging, and that the medium is not yet a proven technology for archival storage. Smith (1999: 4 - 6) also cites a number of reasons why digitization cannot be regarded as preservation. This includes the aforementioned problem of technological obsolescence, which threatens access to digital data. Even though it has been recognised that migration from one format to another can be considered as a solution, migration will not produce a file identical to the old one, meaning that data loss is highly probable. A further problem is that when an image is digitized, it becomes difficult to assess the truthfulness or authenticity of that image, since there is no way of knowing whether the digital image has been tampered with in any way. Despite these limitations, Smith (1999: 7) does concede that "digital images are less likely to decay in storage if they are refreshed, the images will not degrade when copied, and the digital files

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will not decay in use, unlike paper, film and magnetic tape."

Hazen et al. (1998: http://www.clir.org/pubs/reports/hazen/pub74.html) also cautions that preservation of documents in electronic format can only be viable if the information contained in the original has been copied accurately. As Smith and others have indicated, this is highly unlikely. These arguments, however, are based upon the idea that digital images will replace the originals altogether, which is not necessarily the case.

The problems with digitization as a preservation method appear to outweigh the potentials. However, digitization as a preservation application is illustrated in examples such as Spain's Archivo General de Indias where "low resolution grayscale images were prepared so that fragile original documents, some more than five hundred years old, could be spared the rigors of repeated consultation" (Hazen et al., 1998: http://www.clir.org/pubs/reports/hazen/pub74.html). In a report on the same project, Gonzalez (1998: 42) says that digitization has greatly reduced the risk of deterioration for about a third of their holdings, by virtue of the fact that the most popular documents are never handled.

It should also be borne in mind that even if an institution decides to digitize, it can never digitize its entire collection. Cautious and informed decisions would have to be made with regard to which materials to digitize. This is especially the case for institutions with large pictorial collections. Digitization would therefore have to be employed alongside a combination of different preservation techniques.

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2.3 ACCESS

2.3.1 Introduction

In most institutions which hold photographic archives, there is controlled access to the collections, usually in line with collection and conservation policies which limit access to original material. Access to the collections is usually limited by the number of duplicate prints available, and is of course also limited by geographical distance from the museum, archive or library. When one takes into account that the Internet can be accessed at any time of the day or night, the opening hours of these research institutions also become a limiting factor.

It is true that historical photographic collections are amongst the least accessible to researchers because of their large size, fragile nature, complex organisation and sometimes rudimentary description (Ostrow, 1998: 8). The issue of complex organisation is especially the case in archives, where standard archival principles dictate that material be physically grouped together according to the collector or creator of that body of material, and not according to subject areas as in libraries. However, there seem to be no boundaries when one speaks of digitizing historical photographs for increased access. Even though archival standards require that collections of material are physically kept intact and as far as possible unaltered, computer indexing systems alleviate any problems which arise as a result of this, and facilitate the searching of archival documents across collections or bodies of material. In much the same way, computers are now enabling access to the actual content of these archival documents.

2.3.2 Digitizing for increased access

There is absolutely no doubt that digitization of photographic collections leads to increased access, and dissemination of information and resources on a wider scale than when institutions deal solely with the traditional methods of making information accessible. Amongst other conveniences of digital objects, (i) it can be seen by anyone, anywhere in the world at any time of the day with the right technology; (ii) it can be copied and recopied without loss of quality; (iii) it can be sent around the world in seconds with the right technology; and (iv) it can be packaged with other digital images, sounds and text to provide added value (Digitisation Forum Online, 1998: http://www.digitisation.net.au/about_dig1.html). According to Smith (1999: 7), digital copies of surrogates can bring together research materials that are widely scattered around the world, and thus allow these items to be examined alongside each other, using digital imaging technologies.

Despite the fact that there can be no argument that digitization increases access to archival, museum and library collections in general, and to photographic archives in particular, the extent of the benefits of digital technology in this regard, is largely dependent on how these collections are used, and the reasons for often low usage statistics within the traditional museum, archive or library context. According to Hazen et al. (1998: http://www.clir.org/pubs/reports/hazen/pub74.html), collections may generate little interest because it is housed in remote locations, it may be owned by an institution with highly restrictive access policies, or bibliographic records may be poor. Besides digitization being valuable by creating broader access, it may in these cases even create a number of new users. Hazen et al. (1998: http://www.clir.org/pubs/reports/hazen/pub74.html) also say that in cases where resources are too fragile to be consulted, a digital version could be provided to improve access.

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Ostrow (1998: 13 - 14), on the other hand, believes that much depends on the nature of the research. Here, he makes reference to the fact that certain types of researchers require differing levels of detail within a photographic image. Somebody researching for the cover of a magazine brochure may not require the same level of detail as an historian, who, when looking for a war photograph, will be interested, for example, in the insignia on the uniforms and the types of ammunition used. This concerns the levels of resolution used to scan photographs -- low resolution scans may not at all be useful to some users, while high resolution scans may take a long time to download from the Internet for one who only needs a visual reference. This discussion, relating to technical standards for digitization of photographs is dealt with more extensively in the next chapter. Ostrow (1998: 6) also says that libraries [and the same applies to archives], are increasingly serving as stock photo agencies, and that digital images may better address the needs of this non-scholarly audience. This means that library and archival institutions are increasingly supplying photographs for use in commercial ventures such as book publishing, newspaper reporting, television broadcasts and documentaries, which does not necessarily require high resolution scans, and usually requires material at short notice according to production deadlines. This is very much the case at the Mayibuye Archive.

2.4 CONCLUSION

After careful consideration of the arguments referred to in the preservation debate, it seems fair to say that digitization, on its own, cannot be considered in a preservation context. Instead, it is best considered in a preservation context if it is part of a broader preservation strategy which encompasses other preservation techniques. Like other preservation techniques, digitization has both advantages and disadvantages. However, continuing

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research and development work in the area of digitizing photographic archival collections may yield more positive results in the not too distant future.

There is no doubt that digitization increases access to archival materials. However, especially within a South African and African context, access to digital images is also about access to cutting edge technology, and to the appropriate telecommunication, networking and computer infrastructure. Access to these cutting edge technologies needs to better addressed if the benefits of digital technology are to be seen in South Africa and the rest of Africa. With the potentials of modern technology for information dissemination becoming more clearly understood with the growth of the information technology industry in South Africa, the benefits of the technology may well be seen by a greater number of people in South Africa and on the continent in the years ahead.
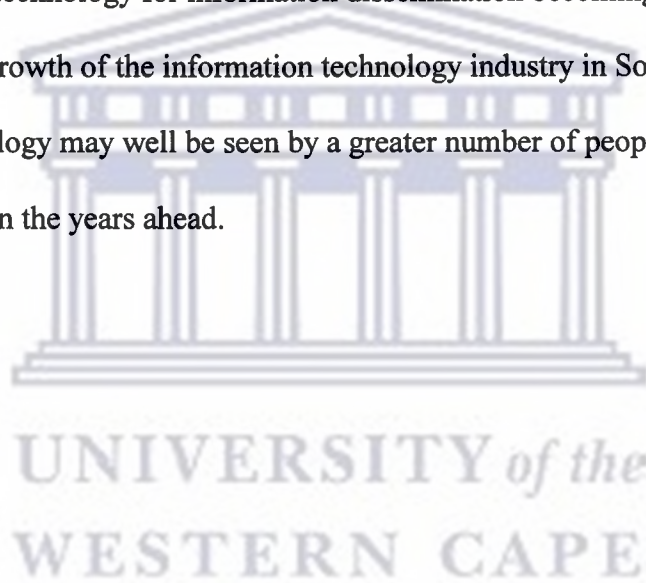
CHAPTER THREE:

TECHNICAL STANDARDS, COPYRIGHT

AND SELECTING MATERIALS FOR DIGITIZATION

3.1 INTRODUCTION

For any institution involved in digital projects, a range of inter-related issues must first be addressed. The broad processes of defining technical standards for digization, clarifying intellectual property rights within the digital environment, and selecting materials for digitization embody these issues.

3.2 TECHNICAL STANDARDS FOR DIGITIZING PHOTOGRAPHIC COLLECTIONS

3.2.1 Introduction

These technical standards for digitization essentially refer to the scanning, storage, indexing, management and presentation of digitized images (Arms, 1996: http://www.dlib.org/dlib/april96/loc/04c-arms.html), which will enable these images to be made accessible for future generations. These standards, however, remain unclarified, and the subject of continuing research and development within the archive, museum and library sector. In her report on the US-based National Digital Library Project Initiative, Arms (1996: http://www.dlib.org/dlib/april96/loc/04c-arms.html) alludes to this problem by saying that "archives of historical artifacts pose problems for digitization that are not typical of the emerging industry for scanning text and images for business and government. Production scanners are designed for single sheets of paper or 35 mm slides. Most contractors are not experienced at generating good digital images from large-format negatives ... commonly used in archival collections to

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eliminate handling of fragile or deteriorating originals." This highlights the fact that commercial industry standards for digitization seldom, if ever, take into account issues such as long-term preservation, which pertain to archives, unless special attention is drawn to such issues by the archival profession itself.

3.2.2 Scanning of photographic images

The key factor relating to the scanning of photographic images is the size and quality of the images to be scanned. According to Frey (1997: http://lyra.rlg.org/preserv/ diginews/ diginews3.html), one of the most difficult tasks associated with scanning photographs involves colour management. This means that before digitizing, decisions have to be made about the levels of resolution and colour depth that images are scanned at. Besser (http://sunsite.Berkeley.EDU/Imaging/Databases/scanning/ quality.html) advises that images should be captured at the highest possible quality, since it is easy to reduce the quality of a scanned image, but not possible to improve it. However, the greater the resolution and depth of colour, the larger the scanned image file. These large scanned image files occupy a big amount of disc space, and should therefore be compressed. For archival purposes, lossless compression, which reduces the file size in half without loss of information, is recommended.

According to Frey (1997: http://lyra.rlg.org/preserv/diginews/diginews3.html), the wide variety of photographic materials and their wide range of possible uses require different scanning approaches. She refers to widespread agreement within the preservation community that a number of image files must be created to meet a number of different uses. The first step, however, would be to create a master image from which various access files can be produced to meet specific uses.

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Fleischhauer (1998: http://memory.loc.gov/ammem/formats.html) says that photographic collections require the production of three to four digital images for each original item. These digital images generally fall into the following three categories:

(i) Preview image, or thumbnail image

This is a small, low resolution image for reference purposes only, which is usually presented together with a catalogue description. It enables the user to judge whether to access a higher resolution copy. According to Frey (1997: http://lyra.rlg.org/preserv/diginews/diginews3.html) thumbnails are not intended for reproduction, and in this case, colour depth is not essential and images can be compressed to save storage space and delivery time.

(ii) Service image

This is a higher quality image which has been compressed for speed of access over the Internet, and occupies less space than the archival image. In this case the digital image is used for reproduction purposes. Colour depth is important since incorrect mapping of the colours will mean that this access file will not be an acceptable duplication of the original (Frey, 1997: http://lyra.rlg.org/preserv/diginews/diginews3.html).

(iii) Archival image

This represents the digital master copy, scanned at the highest possible resolution, and used for high quality reproductions. According to Frey (1997: http://lyra.rlg.org/preserv/diginews/diginews3.html), it is the most challenging to archive in terms of the available technology and cost. Scanning requirements differ from one original to the next, since it is defined by film format and other photographic processes.

The above discussion draws attention to the fact that scanning techniques and requirements are dependent upon well planned digital imaging strategies, including anticipated use of these images in the future.

3.2.3 Storage of digitized images

Besser (http://sunsite.Berkeley.EDU/Imaging/Databases/Scanning/quality.html) has mentioned four possible methods of storing digitized images, namely on the hard drive, on a Photo CD, on a writeable CD, and ZIP discs. He further illustrates the feasibility of some of these methods. In the case of storing large pictorial collections on the hard drive of a computer, multi gigabyte capacity would be required. This does not seem viable for large collections of photographic material. On the other hand, Photo CD is a widely used method for storing digitized images, especially since a maximum of 100 images can be stored on one CD. Writeable CD's also have the capacity to store high quality images, with a capacity of 550 MB. Zip drives, on the other hand use 100 MB discs, and seems to be more feasible as a temporary storage mechanism.

The Library of Congress, through facilitating the National Digital Library Project, has opted to store high quality images on CD-ROM. These CD-ROM's represent an archival copy and save valuable disc space on computer hard drives and web servers. These CD-ROM images enable the production of smaller, compressed files which can be delivered over the Internet (Arms, 1996: http://www.dlig.org/dlib/apr96/loc/04c-arms.html). It makes much sense that in this context, which is applicable to all archives and museums, writeable CD's are not used to store archival or master copies of images, since writeable CD's will allow for easy manipulation of the archival master copy. CD-ROM, on the other hand, does not allow for

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editing of stored data. Even though images can be transferred from CD-ROM and

manipulated on other formats, the master copy being stored on CD-ROM remains the same.

Kodak Photo CD technology operates on the same principle.

A recent evaluation of the Kodak Photo CD technology found that in 85% of the cases

assessed, Kodak Photo CD represented acceptable digital surrogates for originals. The

evaluation also concluded that, (i) Kodak Photo CD is not a good choice for oversized

documents which contain fine detail; (ii) Kodak Photo CD is in fact a good choice for

oversized documents with large detail; and (iii) photographs scanned onto Photo CD

represent comparable quality to originals (Kenney & Rieger, 1998: http://www.library.

cornell.edu/preservation/pub.htm).

High quality archival master copies should therefore be stored on a format which is read only,

such as CD-ROM or Photo CD. Further manipulation, compression or production of

derivatives would be dependent on future usage requirements.

3.2.4 Indexing and cataloguing of digitized images

A digitized image in isolation of its catalogue or bibliographic record serves very little

purpose. Access aids are absolutely essential to the value of digitized images. Traditionally,

archives have used finding aids generated either manually or online, as well as other

computer generated public access catalogues. Computer systems, if present, often vary from

one institution to another. In the case of libraries, higher levels of standardisation exist

through widespread adoption of AACR2 and MARC formats. These standards, however, are

less prevalent in museums and archives, resulting in a more widespread variation of systems from one institution to another.

As part of the process of digitization, digitized images must be linked to catalogue records, be it online or offline, in ways that enable access to both the digitized and original images, as well as to the relevant background information associated with these images. According to Arms (1996: http://www.dlib.org/dlib/april96/loc/04c-arms.html), there are different categories of descriptive information associated with a digital item. These categories include, (i) information which supports intellectual access, namely bibliographic descriptions of the original object; (ii) information which supports the retrieval of a selected item in an appropriate digital format, namely indexing information and keywords as required to facilitate database searches, as well as unique identifiers which will enable the physical retrieval of digitized images; and (iii) information which is primarily for control and management of the digital archive and the historical collections, namely information about the scanning process such as the date scanned, levels of resolution and colour depth used, type of equipment used, the person responsible for scanning, derivatives generated from the master file, storage formats used, migration to other formats, and so forth.

Both existing and past digital projects have had to deal with questions as to where the above-mentioned metadata should be stored. According to Arms (1996: http://www. dlib.org/dlib/april96/loc/04c-arms.html), metadata could be stored in the following ways:
(i) in the digitized items themselves, for those file formats that support descriptive headers;
(ii) in linked items, by scanning a target page for each item, on which details are recorded

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about the digitization operation, such as the item's logical name, the equipment used and special instructions about conversion;

(iii) in external catalogues or finding aids, to support the identification of relevant items through searching or browsing; and

(iv) integrated with the digital object in the repository structure, to support retrieval of an identified item.

Different options also exist for the capturing of metadata, for which it seems no clear decisions have yet been made. Certain institutions including the Library of Congress have used the MARC format to ensure that information is captured in a standardised way. This ensures that when the library presents the descriptive information for a photograph, for example, the system accompanies the records with the display of a thumbnail image, and in the case of a book, the reference provides a link to a searchable full text which links to the set of page images (Fleischhauer, 1996: http://lcweb2.loc.gov/ammem/elements.html). Another standard, called the Dublin Core, requires less specialised software than the MARC format. The Dublin Core consists of fifteen data elements that could be used by information providers to describe their resources. These data elements include: title, author or creator, subject or keywords, description, publisher, other contributor, source, language, relation, coverage and rights management (Arms, 1997: http://memory.loc.gov/ammem/awards/doc/interop.html). Encoded Archival Description (EAD) is a standard which has been developed for computerising structured archival finding aids. It makes provision for a link from the computerised finding aid to the digital reproduction (Arms, 1997: http://www.memory.loc.gov/ammem/award/docs/interop.html).

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It is important to bear in mind that all of the standards mentioned above require the use of further standardised keyword lists and naming schemes. Furthermore, metadata standards should also enable personnel to distinguish between the type of information which should be viewable by the public, and that which should be for management purposes only.

3.2.5 Managing the digitization process

According to Hodge (2000: www.dlib.org/dlib/january00/01hodge.html) management issues include managing staff time and expertise required to develop work flow plans and contract specifications, preparing material for scanning, monitoring progress and performing quality checks of digitized images. More comprehensively, management of the digitization process involves ensuring that certain aspects of the process, as identified by the Digitisation Forum Online (www.digitisation.net.au/about_dig5.html) are blended together in a coherent manner. These include budgeting, prioritisation of materials to digitize, staff training, purchase of hardware and software, allocation of resources, digitisation of the physical object, copyright and ownership, indexing and cataloguing, storage media, migration of digital objects, and provision of access to digital objects. Most of the afore-mentioned issues are examined separately in the course of this paper. However, the following important points should be highlighted:

(i) When budgeting for digitization, institutions should engage in a thorough costing exercise of the physical and human resources required, hardware and software required, research and development work, the actual digitization of the objects, intellectual control, data transfer, storage and delivery systems, as well as for staff training and the ongoing cost of managing systems (Digitisation Forum Online: www.digitisation.net.au/about_dig5.html).

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(ii) Staff would require training to be able to fulfil specific functions such as preserving, archiving and disposing of digital objects; cataloguing and indexing of digital objects; preparing objects for digitization; using navigational tools and finding aids; monitoring digitization procedures and performing quality reviews; preparing detailed instructions for digitization; and operating digitization hardware and software (Digitisation Forum Online: www.digitisation.net.au/about_dig5.html).

(iii) The entire digitization process should be well documented, to enable other institutions to analyse and learn from mistakes previously made. This will contribute to emerging "best practice approaches" for digitization (Digitisation Forum Online: www.digitisation.net.au/about_dig5.html).

3.3 COPYRIGHT IN THE DIGITAL ENVIRONMENT

3.3.1 Introduction

According to Henley (1999: http://www.aslib.co.uk/man-inf/nov99/article02.html) "copyright is essentially the right to control copying of the work. Copying means reproducing the work in any material form, and this includes storing the work in any material form by electronic means. Scanning material will therefore breach both copyright in the text and copyright in the typographical arrangement, [unless the appropriate permissions have been secured first]".

The concerns relating to copyright of digital images can be divided into two broad categories. The first relates to whether the institution that has embarked upon a digitization project has the intellectual property rights to convert images to digital format. The second category of

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concern is about protecting images from misappropriation once they are in digital format, and is somewhat more complicated than the first.

3.3.2 Rights and ownership

In the first category referred to above, a clear distinction between physical and intellectual property is necessary, where the latter refers to the ownership of the ideas presented in material form, and thus the rights associated with an image, while the former refers to an image being physically and permanently located in, and thus in a more tangible sense, owned by the institution. In this case the museum, archive or library may simply be the custodians of a body of work whose intellectual property resides elsewhere. The Digitisation Forum Online (http://www.digitisation.net.au/ bout_dig2.html) cites a number of ways in which rights to content can be acquired. These include, (i) exclusive rights by donation; (ii) exclusive rights by outright acquisition [e.g. purchase agreements]; (iii) limited rights by donation; (iv) shared rights by donation; (v) rights limited [and gained] by exfluction of time, [e.g. materials in the public domain]; and (vi) in the case of archives no ownership rights, only custodial duties. Hazen et al. (1999: http://www. clir/org/pubs/reports/hazen/pub74.html) has presented the facts very clearly, saying that, (i) if a proposed digitizing project involves using materials in the public domain, the work can proceed; (ii) if the materials are protected by copyright but the institution concerned owns rights, or can secure the appropriate permissions, work can proceed; and (iii) if permissions are not obtainable for copyrighted works, the materials cannot be used, and the focus of the project would have to change. The latter is a similar situation to that of photographs being reproduced in books, newspapers and television productions, where penalties may be imposed if the appropriate licensing permissions are not secured.

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According to Ostrow (1998: 23), distributing images over the Internet is not only subject to copyright law, but also to any restrictions that may have been placed on the use of the collection by the donor. Other problems which institutions may encounter when attempting to gain permission to digitize materials are that, (i) it could involve massive amounts of staff time and costly legal advice; (ii) a donor of a collection may have owned the physical property, and not the intellectual rights to the collection; (iii) if the images were generated by contractors, it should be contractually specified that all rights are owned by the institution; and (iv) copyright may have passed from the original creator to heirs not known by the institution (Ostrow, 1998: 24). It should be noted that there are lawful uses of protected works, which have been classified as "fair use" and is applicable only to the use of images for educational purposes.

3.3.3 Protection of digitized images

Once images are in digital form there is very little that can be done to protect these images against unauthorised usage. This is the second category of concern relating to copyright of digital images. It is especially the case when images are available on high speed networks such as the Internet, and according to the Visual Materials Task Force (1999: 23) of the Council on Library and Information Resources, museums are increasingly becoming unwilling to make their images available online out of concern for how they will be used or for fear of losing money. This issue is therefore one of ongoing discussions and debates in the museum world, and included in these discussions, is the possibility of mounting low-resolution images and embedding watermarks in the image. Torres (1995: http://sunsite.berkeley.edu/imaging/databases/fall95papers/torres.html) has described a number of technology-based solutions to control the use of copyrighted images on the

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Internet, including (i) server and file level controls, which involve using special software products that control by whom and to what degree a protected work may be used; (ii) encryption, which means that in order for users to access an image, they must have access to a secret key which will put 'scrambled' data into order; (iii) digital signatures, which in effect places a stamp on a digital work; and (iv) watermarks, which could be hidden in the file, and therefore will not affect the visual quality of an image, unless there is an attempt to reproduce it, and says that some of these solutions are being used in institutions such as the Vatican Library where IBM is using electronic watermarking for more than 20 000 documents, as well as in the United States National Library of Medicine where copyright protected images have a diagonal line placed through the image.

However, it is likely that these kinds of solutions are short-lived in an environment where new technologies are rapidly changing and developing, which will eventually render these protections as ineffective. The best way of protecting digital images may therefore be to scan low resolution photographs onto the Internet while higher resolution scans could be stored offline on optical disc formats such as Photo CD which is easier to manage in terms of copyright. These high resolution images could be made available to users with whom prior usage agreements have been reached, or could be solely for use in archival reading rooms. The low resolution Internet file could serve as a reference to the high resolution picture on CD.

At the Vatical Library, the visible digital watermarking technique was developed, to be able to identify images as Vatican Library material. However, a decision was taken that unmarked, uncompressed high resolution images would not be made available over the

Internet. Instead, two separate systems were implemented, one providing remote access and the other providing local access. The local access system provides high resolution, unmarked, compressed and uncompressed images to its users, while the remote access system provides low resolution, watermarked, lossy compressed images to its users (Mintzer et al.: 1996, http://www.research.ibm.com/journal/rd/mintz/mintzer.html).

The above discussion presents copyright as a crucial factor to the success of any digitization programme and illustrates that digitization decisions rely heavily on the copyright status of an image. If copyright is not secured, and images are to be used for more than just educational purposes, the option to digitize must be ruled out completely. However, the above discussion illustrates that even when copyright permissions are secured, there are further complicated issues that institutions must be prepared to deal with.

3.4 SELECTING IMAGES FOR DIGITIZATION

3.4.1 Introduction

The previous section has outlined the crucial role of copyright and ownership rights in the digital environment. It makes complete sense that Hazen et al. (1999: http://www. clir.org/pubs/reports/hazen/pub74.html) has identified copyright as the place to begin when selecting materials for digitization, since the answer to the copyright question will indicate whether an item can even be considered for digitization. However, after copyright has been cleared, questions of what should be digitized, are based upon factors such as use and users, the subject content of the collection, the physical nature of the

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collection (Ostrow, 1998: 26 - 27), as well as technical formats and an assessment of the costs and benefits associated with digitization (Hazen et al., 1999: http://www.clir.org/ pubs/reports/hazen/pub74.html).

3.4.2 Use and users of collections

It is important to identify at an early stage who will best benefit from digitization of a particular item or collection. The logical approach seems to be to digitize those materials that are most widely used. However, Hazen et al. (1999: http://www.clir.org/pubs/reports/ hazen/pub74.html) say that intensive use does not necessarily make a collection a good candidate for digitization. It depends on whether the users are local, in which case access to the collection may not necessarily be a problem, or if the collection is in demand by a worldwide audience, in which case access may be limited by geographical distance, making digitization an attractive option.

Hazen et al. (1999: http://www.clir.org/pubs/reports/hazen/pub74.html) also says that low use may mean that a collection has little research value but that other reasons such as collections being held in remote locations, or owned by institutions with restrictive access policies also contribute to the low usage of valuable materials. In these instances, digitization can create a number of new users.

Smith (1999: 11) has highlighted the role played by scholars in selecting items for preservation. In much the same way, scholars play an important role in the selection of items for digitization. According to Hazen et al. (1999: http://www.clir.org/pubs/reports

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/hazen/pub74.html), it needs to be examined how scholars use existing source materials and what approach to digitization will best benefit their work.

3.4.3 The subject content of the collection

It should be determined whether the subject content of the collection being considered for digitization is important for users, whether the images in the collection inform each other, or are related to other collections that have already been digitized (Ostrow, 1998: 26). However, also to be considered, is whether digitization can increase the intellectual value of a collection. Hazen et al. (1999: http://www.clir.org/pubs/reports/hazen/pub74.html) are of the opinion that materials with little scholarly value should be left in their original form, since it would be too costly to digitize materials which attract little scholarly interest. However, they recognise that digitization can add value to archival material, since much can be accomplished with electronic texts and images that is not possible when working with material in its original forms. Examples include moving electronic images from one format to another, into word processing programmes, viewing images in groups at low resolution, or viewing images in detail.

3.4.4 The physical nature of the collection

To aid the selection process, the physical nature of the collection would have to be assessed on a number of different levels. Lee (1999: http://www.bodley.ox.ac.uk/ scoping/assessment.html) says that it should be determined whether the delicate state of some materials calls for specialised conservation treatment, before digitization can happen, and that there should also be clarity as to whether an appropriate collections management system is in place. If materials are in a rapid state of deterioration or are too

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fragile to be handled by researchers, digitization should be strongly considered as a reformatting option.

Hazen et al. (1999: http://www.clir.org/pubs/reports/hazen/pub74.html) also refers to the scattered nature of some archival documents. Related documents may be scattered within an institution, because they belong to different archival collections, and may also be scattered across institutions. In these instances, digitization can play a significant and powerful role by allowing images which are scattered across collections or institutions to be viewed alongside each other.

Assessments of the physical nature of collections should also look at the size of the collections. In archival institutions, it may not make sense to digitize selective images in a collection, but rather to digitize the entire collection, to enable users to view an image in its context and alongside related information. However, if collections are particularly large, cost factors may be a limiting factor.

3.4.5 Technical formats of the digitized images

The technical formats for digitized images are discussed at length in section 3.2 of this chapter. It refers to the issues of scanning, storage, metadata and management of digitized images, which are all critical to the process of selection, since they reveal whether an institution is prepared for digitization or not.

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3.4.6 Costs and benefits of digitization

According to Hazen et al. (1999: http://www.clir.org/pubs/reports/hazen/pub74.html) the following questions should be asked in the selection process, (i) who will benefit from the proposed digital product; (ii) is the intellectual value of the product worth the expense; (iii) could another acceptable product be created at lower cost; (iv) how will the project deal with long-term costs associated with the digital files; and (v) can external funding be secured to support the project.

3.5 CONCLUSION

It is clear from the above discussions relating to technical standards, copyright and selection, that the decision to digitize is dependent upon a range of different factors, which are closely woven together. At first glance, it may not seem that technical standards could be related to copyright or to selection of images for digitization. However, this chapter has clearly illustrated this connection. An example is that the decision to scan a photograph at low or high resolution, is in all probability, related to the copyright status of that image. The decision to scan at low resolution is directly related to protecting an image once it is in digital form.

Metadata standards, naming schemes, indexing standards and procedures, storage formats, scanning techniques and cataloguing have been referred to as technical standards in this chapter. The presence or absence of these demonstrate whether an institution is prepared for digitization or not, and whether the institution is at all prepared to deal with complex issues of copyright and selecting materials for digitization. The following chapter takes a closer look at the Mayibuye photographic archive.

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CHAPTER FOUR:

CONTEXTUALISING DIGITIZATION AT THE MAYIBUYE PHOTOGRAPHIC ARCHIVE

4.1 INTRODUCTION

According to the First annual report of the Mayibuye Centre (1992: 5), "researchers made extensive use of the photo library in the past year [1992]. The Centre's photographs appeared in television productions on BBC, SABC and German television. They appeared in books by publishers such as Longman, Readers Digest and James Curry, as well as journals such as Southern African Review of Books, South African Outlook (which uses our photographs almost exclusively), Learn and Teach, Speak and South." These trends for usage of Mayibuye photographic material is still applicable eight years after the inception of the Mayibuye Centre. It is evident from user records of the photographic archive, that it's photographs continue to be used extensively in academic and scholarly text books, film documentary productions, television productions, as well as exhibitions held in commemoration of important historical events, and leaders of the South African liberation struggle.

This chapter takes a closer look at the workings of the Mayibuye photographic archive. It examines how the collections have been developed and its origins, which yield important results in relation to copyright and access to the collections. The chapter also provides an overview of current archival practises in relation to preservation of historical photographs, as well as access to photographic prints, and looks at how digitization can best be used within

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this context. Finally, this chapter also provides a user perspective of the Mayibuye photographic archive, and it's potential use of digital technology.

4.2 ORIGINS OF THE COLLECTION

"The [Mayibuye] Centre was given a major boost when it received a large ready-made multi-media archive from the London based International Defence and Aid Fund for Southern Africa (IDAF) late in 1991 after the closure of that organisation" (First annual report of the Mayibuye Centre for History and Culture in South Africa, 1992: 1). Included in this 'multi-media' archive were the approximate 70 000 prints and negatives, which currently form the core of the Mayibuye photographic archive. The value of these historical photographs is unquestionable. However, it should be noted that IDAF, as an international anti-apartheid organisation, used these photographs to create an awareness of the unjustness of the apartheid system in South Africa, with the full sanction of the owners of the photographs. In fact, many photographers preferred to remain anonymous for fear of reprisals by agents of the apartheid government.

On the other hand, this collection of photographs took on a different meaning as an archival record, after it had been returned to South Africa in the early 1990s. Increasingly, the Mayibuye photographic archive faced challenges in terms of, (i) preserving these irreplaceable historical artifacts; (ii) broadening access to a collection of material that had rarely, if ever, been seen in South Africa prior to 1990; (iii) acknowledging the work of photographers, whose identities were not always well known, for the historical reasons referred to above; and (iv) dealing with sensitive questions of copyright, which has become a key requirement in the new information climate of the post-apartheid system.

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Similar factors need to be considered for later Mayibuye acquisitions of photographic material, including collections received from the Grassroots and South Community Newspapers. It is important to understand this changed role of the photographic collections, from a pre-apartheid to a post-apartheid context, to be able to deal with some of the complex issues which the Mayibuye photographic archive has inevitably started dealing with.

4.3 PRESERVATION OF THE COLLECTIONS

Preservation of the Mayibuye photographic collections is limited to the basics of a preventive conservation system. This involves good housekeeping methods, as well as ensuring that photographs are stored in archival quality enclosures. According to Goddard (2000), original photographs are stored in polyester sleeves and these sleeves are placed in acid free boxes. Both the polyester sleeves and acid free boxes provide for neutral storage enclosures. In addition to this, some negatives are stored in a temperature controlled room at the South African National Gallery, since this kind of facility is currently not available at the Mayibuye Archive. Also from a preservation perspective, the loan of original photographic material is not permitted. Duplicate prints are made available to researchers, and in cases where no duplicates exist, additional copies are printed by the photographer of the archive. This involves many hours of darkroom work.

These are the only photographic preservation mechanisms in place at the Mayibuye photographic archive, and according to Goddard (2000) and Van Driel (2000), there is much room for improvement. Some negatives, other than those stored at the South African National Gallery, are housed in a special room at the Mayibuye Archive. However, there is no climate control system, and photographs are stored in questionable, commercially

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produced sleeves (Goddard, 2000). Goddard (2000) has also referred to different photographic processes and paper being used for the production of different collections of photographs, an important consideration in any conservation programme, which has already been alluded to in chapter two. This means that some photographs will naturally deteriorate because of the kinds of chemicals and paper used in production. These kinds of deterioration agents are generally referred to as 'inherent vice' in the archival profession, and represents further challenges to the preservation community. Since the Mayibuye photographic archive does not have staff trained in the technicalities of photographic conservation methods, it is likely that the preventive conservation approach will be developed and more rigorously applied in the short to medium term future at the photographic archive. However, it is also important that other methods of preserving this unique collection of heritage resources be extensively explored. This should include the preservation of both original photographs, as well as the content embodied in these photographs.

Whereas Van Driel (2000) felt that digitization could not be considered in a preservation context at the Mayibuye photographic archive, Goddard (2000) saw digitization of the photographic collections as a means of decreasing handling of fragile, original photographs, and thus as an important aid to preservation, though not entirely a preservation method. The latter opinion reinforces the conclusion reached in chapter two of this study, which says that digitization can be considered in a preservation context if it is part of a broader preservation strategy.

4.4 ACCESS TO THE COLLECTIONS

4.4.1 Access procedures for researchers

According to Goddard (2000), the collections of the Mayibuye photographic archive are open to the general public. It is only because of it's small staff complement that researchers have to book appointments in advance. Goddard also says that it is good to inform archivists in advance of the purpose of the research visit, a thematic description of photographs required and the intended use of the photographs. The Guidelines for use of the Mayibuye photographic collections (undated) makes reference to charges for the use of photographs for commercial purposes. Since these levies are imposed in accordance with a rate schedule, with different charges for different categories of users, it is a sensible request that users inform the archives staff of the intended use of photographs prior to their research visit to the archive. This enables the staff to determine the costs in advance. Once users have selected the photographs for use, they are required to sign a licensing agreement with the photographic archive. These licensing agreements serve to protect the intellectual property rights of the Mayibuye Archive. This process can be a time consuming one, especially in light of the fact that there are only two permanent staff members employed in the photographic archive.

The procedure described above would be a bit simpler to manage if the archive was located in close proximity to all of its users. However, this is not the case. Many of the users are from other regions of South Africa, and according to Van Driel (2000), international researchers make extensive use of the photographic collections. This means that staff have to make selections of photographs for international users, based on requirements which have been communicated via fax or email from the users. Even though this is a situation which is being managed in the Mayibuye photographic archive, it is not entirely feasible, since it adds to a

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heavy staff work programme and it is not always possible for staff to be accurate in their perceptions of user requirements. Access to the Mayibuye photographic archive also makes provision for requests from school and university students, who often require photographic material for school or academic projects, and who are usually happy to use xerox copies of photographs.

Even though digital technology may not be the only answer to a more effective system of procedures at the Mayibuye photographic archive, it certainly holds a great deal of promise. Goddard (2000) says that digitized images will be most beneficial for users who are separated from the archive by physical distance and geographic boundaries. He says that the availability of images in digital format, will offer much more availability than when there are only two photographic prints available. It is clear then that users who have access to the necessary technologies, will be able to view and download digital images for use in their projects and productions, without physically visiting the archive or relying on the photographic archive to select material for them. Procedures and agreements for the use of digital images would still be a necessity in this context, but it is likely that some of these processes could be completed online. For example, users may be required to complete and submit a form with regard to the nature of use, or to produce account or credit card details in the case of commercial users, before material can be downloaded. Even though this is merely an example of what is possible, digitization means that staff would then be able to allocate a large percentage of normal research processing time to other important archival tasks. However, it should also be borne in mind that "a limited audience gets to see digitized images" (Goddard, 2000). In this instance Goddard refers to the fact that a significant percentage of the users of the photographic archive, namely school students, do not have

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access to the appropriate digital technologies. This situation is likely to change, but definitely not at a fast enough pace, to justify the availability of images in digital format only. Goddard (2000) says that images must be made available in other photographic formats, to meet the needs of all of the archives' users.

As indicated in chapter 3, the justification and decision to digitize, should not be based on a simplistic assessment of possibilities and perceived benefits of the technology, alone. Instead, cautious decisions have to be made which consider questions of how well the collections have been documented, copyright and intellectual property rights, technical infrastructure for digitization, as well as managing the entire digitization process. These issues, as they relate to the Mayibuye photographic archive, are examined further in this chapter.

4.4.2 Documentation and cataloguing of the collections

According to Van Driel (2000), the photographic collections are reasonably well catalogued, and physically processed. The photographs are categorised into subject areas, and the computerised database allows for easy searches. Goddard (2000) agrees that the system allows for easy searching on the computerised database, but says that the entire retrieval system should be overhauled. The computerised database which is being used is an old one, running on the MS-DOS operating system, and does not allow for any flexibility or improvements to the database. As such a new database, running on a Microsoft Access system has been selected, and a phased process of transferring catalogue records to the new system has begun. With current staffing infrastructure at the photographic archive, this may take a long time to complete. According to Goddard (2000), the retrieval system must make

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provision for easy access to both the original and a digitized image. It should also record the information associated with the digitized image. He says that a great deal of cataloguing work would have to be done to gain proper control of the archive. The new computerised database makes provision for a reference to the original image, as well as a link to a digitized image, and since it is a collections management system, also makes provision for all of the associated information.

4.4.3 Copyright and access restrictions

As indicated above, the IDAF photographs form the core of the Mayibuye photographic archive. During its years as an international anti-apartheid organisation, IDAF was given the full right to distribute these photographs, many of which were smuggled out of South Africa, to create an awareness of conditions under the apartheid system in South Africa. However, after the apartheid system was abolished, and once these photographs were returned to South Africa, these photographs became commercially marketable, and some photographers have questioned the right of the Mayibuye Centre to distribute their work for commercial purposes. Most of these photographers do not have problems with their photographs being used for research purposes at the Mayibuye Archive. Others have not objected to their photographs being used for commercial purposes, on the understanding that they would receive a royalty payment from the Mayibuye Archive.

A similar situation exists for other large collections of photographic material. Examples are Grassroots and South, both of which were community newspapers, and were part of the alternative press at the height of the mass struggles of the 1980s period. Many of the photographs that appeared in these newspapers were taken by freelance photographers, some

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of whom are not known to the Mayibuye photographic archive. It is therefore difficult to determine what photographs were the copyright of Grassroots and South, and therefore which of these the Mayibuye Archive has the right to distribute.

As such, the matter of most concern is that no formal written agreements exist with photographers. This is despite the fact that, (i) there is an informal understanding that royalty payments will be made to some photographers who have agreed to this; (ii) most photographers do not have problems with their photographs being used for research purposes; and (iii) some photographers have imposed verbal restrictions that these photographs may be used for research purposes only. This situation calls for corrective action, and has been identified as one of the priorities of the photographic archive for at least the next three years. According to Goddard (2000), it is important that a distinction be made between a photographic archive and a photographic agency, and that it be clearly communicated that the Mayibuye photographic archive is not a profit-making agency, but that it is part of an institution concerned with preserving and disseminating an important part of South Africa's history. With the continuous growth in the technology industry, it is important that these written agreements also make provision for planned digitization initiatives at the Mayibuye Archive.

4.5 TECHNICAL INFRASTRUCTURE FOR DIGITIZATION

Very little technical infrastructure for digitization is currently available at the photographic archive. However, after some background research as to what equipment should be used, an apple computer has been purchased, and an A3 scanner, CD writer, zip drive and the latest version of Adobe Photoshop software is on order. Once this equipment has been properly set

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up, the photographic archive staff will start providing photographs to users, who require it, in digitized format. The idea is that images will be scanned onto CD-ROM or Photo CD at the highest possible quality. These images will then be available to be copied onto other formats, with the quality being reduced if necessary. This will greatly speed up the process of delivering images to users.

The above situation is seen as a short-term answer to providing almost instant access to the collections of the photographic archive, for specific user groups. However, more detailed work with regard to the technical infrastructure would be required, to be able to set up a well organised digitized archive. This includes developing metadata standards, improving key word lists and naming schemes, indexing of collections, and ensuring that the newly selected database makes provision for these standards.

4.6 MANAGING THE DIGITIZATION PROCESS

Even though basic equipment for digitization has been purchased at the photographic archive, there is no clear long-term strategy for managing the digitization process, largely because of the little experience that staff have in this field. It is therefore important that the projects which are currently being set up are managed as pilot projects, which take into account issues of staff time, staff training, budgeting for digitization and other important factors such as copyright, documentation and cataloguing of the collections, as well as making photographs available in other formats.

4.7 USER PERSPECTIVES

4.7.1 Introduction

As a further step to assessing the feasibility of digitization at the Mayibuye photographic archive, a questionnaire was sent to corporate users of the archival collections, evidently the largest user group of the photographic collections. They answered questions pertaining to the intellectual content of the photographic archive, how frequently they use the collections, the relevance of the photographic collections to their work, the nature of use, service delivery as well as preferred technical formats for photographs. The answers to all of these questions will assist the Mayibuye photographic archive to, (i) determine whether digitization would suit the needs of it's user community; (ii) identify areas of improved service delivery in the archive, and determine whether digitization would be a viable method of improving delivery; (iii) develop a strategy for broadening access to it's historical photographs, taking it's user perspectives into consideration.

4.7.2 Intellectual content

Chart 1: Intellectual Content

Satisfied 62.5%

Abstained 12.5%

Dissatisfied 12.5%

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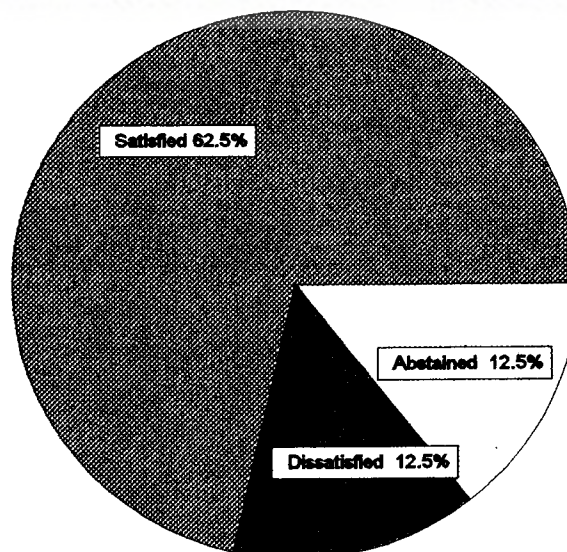
Sixty two point five percent of the respondents were satisfied with the intellectual content of the Mayibuye photographic archive, while 12.5% expressed dissatisfaction, and another 12.5% abstained from answering the question. Those that were happy with the content of the collection generally felt that the collection of South Africa's political history photographs are extensive and very useful, and that they were always able to locate the material that they were looking for. It should be noted that the respondents who were unhappy, are generally clients who had not visited the archive themselves, but who relied on staff selections of photographs for their projects. This may be a good motivation for the photographic archive to improve it's service delivery by making digital thumbnails available on the Internet, for users, who have the right technology, to make the selections themselves.
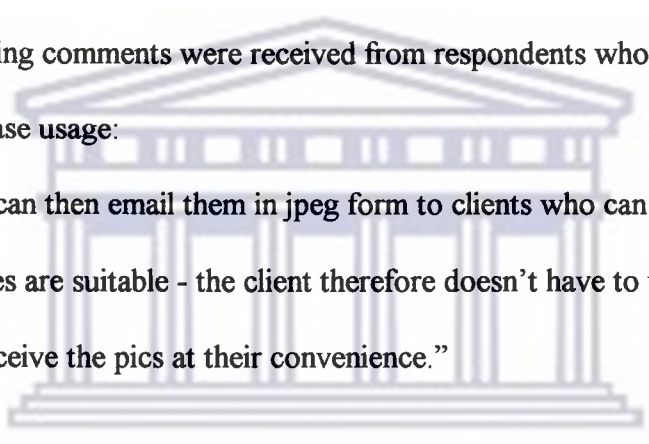
4.7.3 Frequency of use

Chart 2: Frequency of use

- Two - five times 62.5%
- Six - ten times 12.5%
- Once 25%
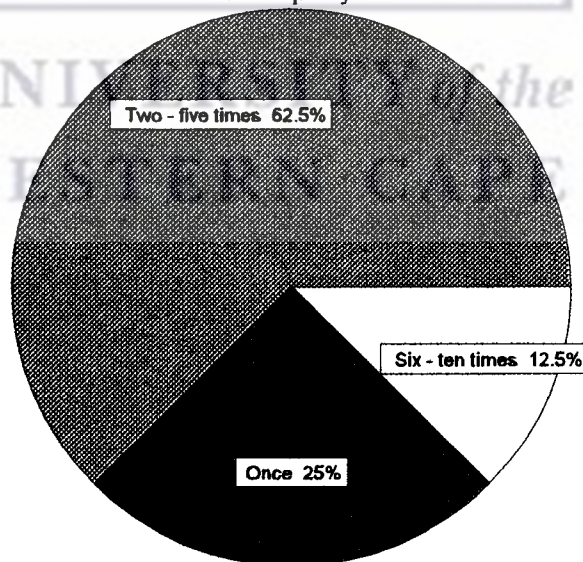
None of the respondents consulted the photographic archive more than ten times. As is evident from the above chart, the majority of respondents (62.5%) consulted the archive two to five times, while 25% consulted the archive once, and 12.5% consulted the archive six to ten times.

At the same time the vast majority of respondents (62.5%) felt that their usage of the photographic archive would increase if photographs are available in digital format, while 12.5% said that usage would not increase, and another 12.5% abstained from answering the question. The following comments were received from respondents who believe that digitization will increase usage:

> "You can then email them in jpeg form to clients who can decide whether the pictures are suitable - the client therefore doesn't have to visit the Centre but can receive the pics at their convenience."

> "We use many photo libraries which have digital format because this is the easiest way for us to work."

> "When I approach picture libraries, and depending on what I'm looking for, I prefer to cast my net as widely as possible in order to discover whether an image is available, in as little time as possible, so as to allow for print-making, posting, etc. Knowing that you're digitally available would mean that I'd list you even if the lead-time was short."

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These are extremely significant comments for the photographic archive, and the management of the Mayibuye Archive to consider, if usage of the photographic collections is to be encouraged and marketed.

4.7.4 Nature of use

Chart 3: Nature of use

Exhibitions 12.5%
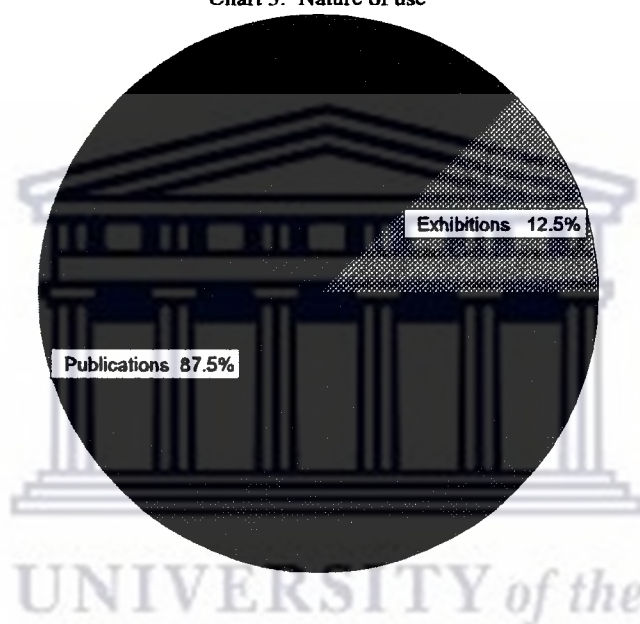
Publications 87.5%

The majority of the respondents (87.5%) indicated that they used the photographs in publications, whereas 12.5% used the photographs that they obtained in exhibitions. It is important to note that user records of the photographic archive provide a clear indication that photographs are sometimes used in film productions and television broadcasts, but that most users are involved in producing publications.

Seventy five percent of the respondents believe that the material obtained was relevant to their research, while 25% said that it was only relevant sometimes. This is, in all probability, related

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to the current scope of the photographic collections, an area for which a separate study is required. However, none of the users believe that the collection is totally irrelevant.

4.7.5 Service delivery

Chart 4: Service delivery

Excellent 25%

Good 75%
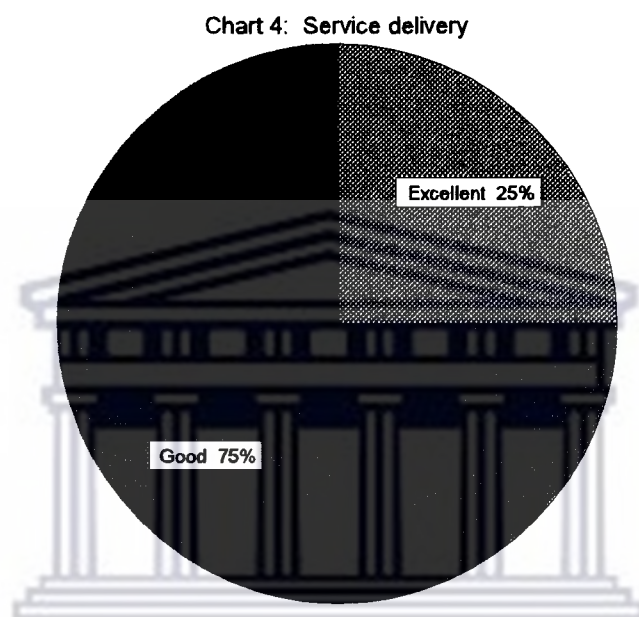
According to chart four, 75% of respondents believe that the staff turnaround time for supplying copies of photographs is good, while 25% believe that staff turnaround time is excellent. Considering the comments received from users who felt that digitization will increase their usage of the photographic archive, outlined in 4.7.3, and the potential benefits for service delivery, it is important for the archive to develop it's digitization programme, for the purposes of both improving and increasing it's services to users. In chapter 3, reference is made to Hazen et al. (1999, http://www.clir.org/pubs/reports/hazen/pub74.html) who believe that digitization can create a number of new users. This is an important consideration for the Mayibuye photographic archive.

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4.7.6 Technical formats and standards

4.7.6.1 Photographic formats

Chart 5: Photographic formats
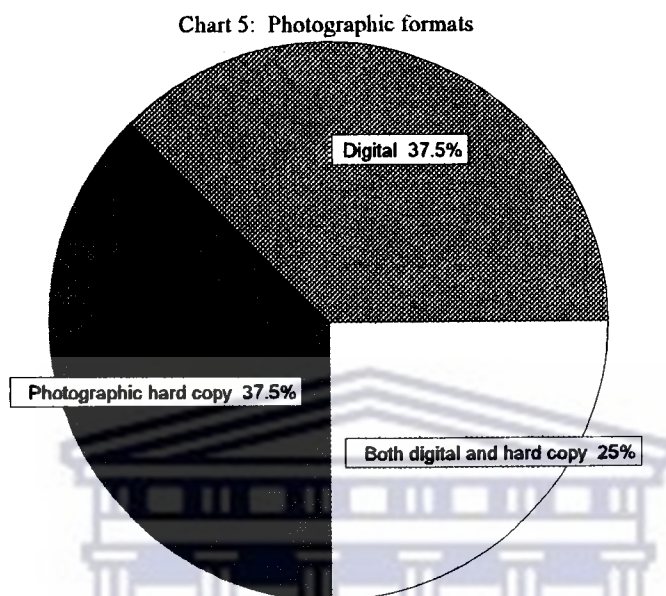
Chart 5 illustrates that 37.5% of respondents prefer to receive photographic prints in hard copy, another 37.5% prefer to receive photographs in digital format, while 25% prefer to work with both the hard copy and the digital image. Those who believe it necessary to work with both formats, prefer to first receive a digital copy via email as a preliminary check, and would ask for a hard copy if they decide that they would like to use the photograph. On the other hand, if high resolution images are available, there wouldn't be a need for them to work with a hard copy.

A general reasoning of the 37.5% of respondents who prefer to work with hard copies is that digital format restricts the size of the picture in a production. They would need to be sure that pictures are scanned at the right size and the appropriate resolution.

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The 37.5% of the respondents who prefer to receive material in digital format believe that a

digital archive will allow users to personally select and download material, and that if

photographs are only available in hard copy, they would have to send these for scanning,

which is time consuming and costly, especially in the corporate sector.

4.7.6.2 Resolution of scanned images

Chart 6: Resolution

High resolution 50%

Not applicable 12.5%

Low resolution 37.5%
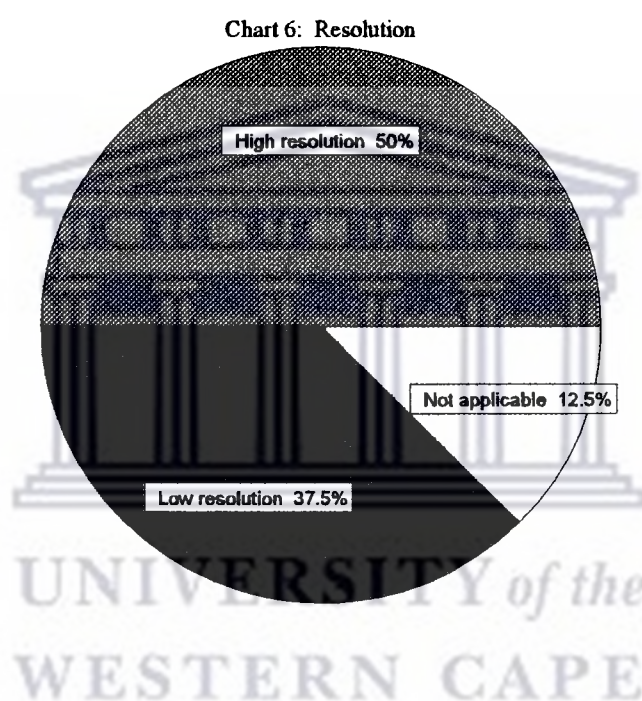
Of the respondents who prefer to receive material in digital format, 50% believe that high

resolution images is essential to their research, while another 37.5% believe that they do not

require high resolution images. The question was not applicable to 12.5% of respondents,

who prefer to work solely with the photographic print in hard copy. The respondents who

require high resolution images are generally of the opinion that the quality of low resolution

images is too poor to publish or produce, and high resolution images would be the final 'paid

for' selection, while low resolution images would be for viewing purposes only.

The respondents who felt that high resolution images is not essential to their research, say that low resolution would suffice for viewing purposes, and that high resolution would only be necessary once there is certainty that an image is required.

Evidently, both groups are expressing the same opinion, but from different perspectives. One is purely from a publishing and production perspective, while the other is from a research perspective.

4.7.6.3 Computer hardware and software

Chart 7: Hardware and software

Availability of hardware and software 87.5%

No availability of hardware and software 12.5%
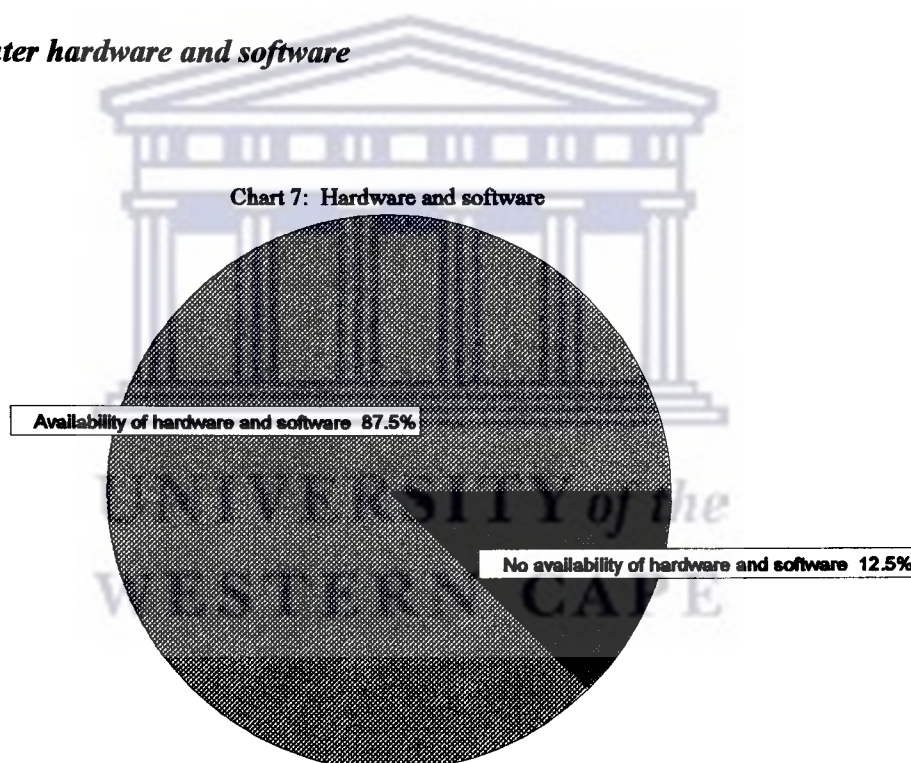
According to chart seven, 87.5% of the respondents indicated that they have access to the computer hardware and software necessary for retrieving photographic material in digital format, whereas 12.5% do not have access to the right technologies. Most of the respondents have access to computer facilities such as a PC, Apple Mac, CD-ROM and zip formats, as

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well as email, Internet and Adope Photoshop software. Both Goddard (2000) and Van Driel

(2000) make reference to their experiences with users, and reach the conclusion that most big

organisations, like publishing houses, have access to digital technology.

4.8 CONCLUSION

Judging from the current practises and conditions in the Mayibuye photographic archive, as

well as the user perspectives which are highlighted in the course of this chapter, there seems to

be a strong motivation for the photographic archive to embark on a programme of digitization.

In this context, it can be considered as both an aid to access and preservation. In the absence

of a strong preservation programme, it would go a long way towards strengthening the

preventive conservation approach at the archive. The comments received from the largest

user group of the photographic archive speak for itself - digitization will increase usage of, as

well as improve access to, the Mayibuye photographic archive
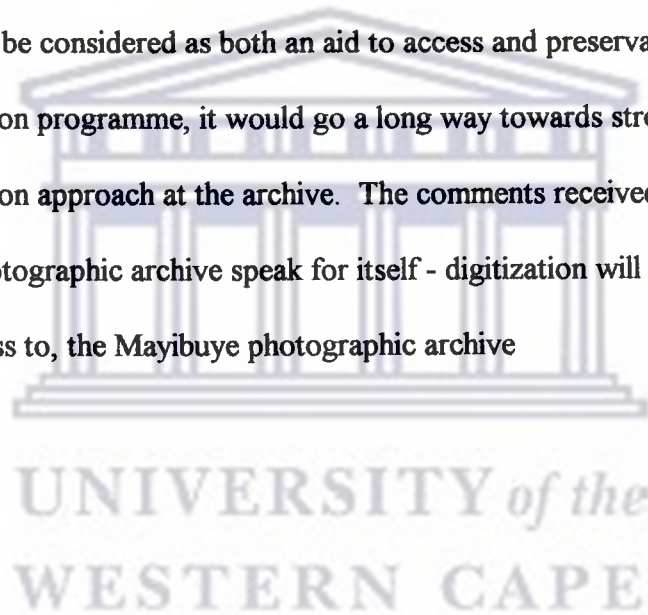
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This research has set out to determine a number of issues in relation to digitization of photographic collections at the Mayibuye photographic archive.

While chapter one sets the scene for the rest of the study, chapters two to four, provide a resounding agreement that the potential effects and benefits of digitization cannot be dismissed in the museum, archive and library sector. Much has already been accomplished in international institutions, where research and development work is continuing to lay the foundations for digital applications in museums, archives and libraries. In the case of the Mayibuye Archive, and other institutions which house archives of the South African liberation movement, digitization is extremely viable. The idea of pooling together resources within a digital environment such as the Internet, creating a virtual archive, and thus eliminating perceived inconsistencies or gaps in the collections, is an attractive one, which will definitely contribute to a 'democratization' of archival resources, and a further shift from the pre-1994 government system in South Africa which advocated limited access to information through the banning of relevant media.

This final chapter addresses the questions which have been raised in chapter 1 of this research, and where necessary and possible, makes recommendations for future action by the Mayibuye photographic archive staff and management.

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5.2 WHY DIGITIZE

The perspectives received from corporate users of the photographic archive, presented in chapter 4 of this research, provide a clear indication that digital is the preferred photographic format to work with. In addition to this, the majority of questionnaire respondents (62.5%) indicated that their usage of the photographic archive would increase if photographs are available in digital format. This is an important motivation for digitization at the Mayibuye photographic archive, and may explain why none of the respondents used the photographic archive more than 10 times.

At the same time the response that 62.5% of users are satisfied with the intellectual content of the collection is a reaffirmation of the relevance of the photographic collection, and provides an additional motivation for digitization. It should be noted that chapter 4 makes reference to the fact that respondents who were unhappy with the content of the collections were generally those who relied on staff selections of photographs, and they had not visited the archive themselves. The availability of digital thumbnails on the Internet which allow users to make their own photograph selections could well change this response.

Both Goddard (2000) and Van Driel (2000) have referred to their experiences of working with corporate users, and have indicated that most large publishing houses and organisations have access to digital technology. This has been verified by questionnaire respondents, of which 87.5% have access to the technology necessary for working with photographs in digital format. This is another reason for digitization to be strongly considered at the photographic archive.

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It is evident from this research, that digitization, especially in the Mayibuye Archive context can assist with a number of different archival functions, ranging from preservation issues to service delivery , and to increased access. But perhaps most importantly, digitization of the photographic collections at the Mayibuye Archive will create a virtual environment, in which these collections can be viewed alongside other related Robben Island Museum and Mayibuye collections. This is also significant if one considers that material which depicts the history of resistance in South Africa, is scattered across both South African and, in a few instances, international institutions. Digitizing these collections for the Internet will immediately assist with broadening access.

5.3 USING DIGITIZATION AS A PRESERVATION METHOD AT THE MAYIBUYE PHOTOGRAPHIC ARCHIVE

The following statement by Marchand (1992: http://palimpsest.stanford.edu/byauth/ marchand/compscan.html), is particularly appropriate to the Mayibuye photographic archive, "Since the advent of photography in the mid-19th Century, we have come more and more to depend upon photography as our means of recording and preserving the past. The problem with photographs is that they are often poorly done, particularly given the conditions under which they often must be made, and the process of improving them in the darkroom is long and arduous. The digital computer has changed all that."   This has been referred to in the discussion on digitization as a preservation method in chapter 2 of this study.

Considering that the photographic collections, and it's process of reaching the Mayibuye Archive, has it's own historical background, the above scenario is particularly applicable to the Mayibuye photographic archive. Goddard (2000) has referred to the deteriorating state of

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some photographic negatives at the Mayibuye Archive, which should be considered as potential candidates for digitization. Digitizing these images will mean that the originals will never need to be used, they can be sent for specialist conservation work, and preserved in proper temperature controlled environments.

However, it is important to note the findings of chapter 2, which provide a clear argument that digitization, on it's own, cannot be considered in a preservation context. Instead, Goddard (2000) has referred to digitization as an important aid to preservation. The fact that digitization will decrease handling and use of original photographic collections is an illustration that digitization will assist the broader preservation policies and iniatives of the Mayibuye Archive.

5.4 DIGITIZATION AS A MEANS OF INCREASING ACCESS TO THE PHOTOGRAPHIC ARCHIVE

Chapter 2 concludes that there is no doubt that digitization increases access to archival materials. This is an appropriate consideration for the Mayibuye photographic archive, especially since many users are located in other regions of the country or outside of South Africa's borders. This is further motivated by the questionnaire responses received from corporate users of the photographic archive, in which the overwhelming number of respondents believe that digitization will not only improve service delivery but will also increase their usage of the photographic archive.

Digitization will not only facilitate quick and easy access to users who are able to access the archive remotely. However, it will mean that staff will be able to allocate more time to meeting the information needs of other categories of photographic archive users.

Thus, the Mayibuye photographic archive cannot be limited to supplying copies in digital format only. Photographs must be available in other formats to meet the requirements of those who prefer to work with a photographic print. This is especially the case for school students, academic researchers and those users who have a general interest in the collection. This is also the case for those who do not have access to cutting edge technologies.

5.5 COPYRIGHT AND AUTHENTICY OF THE PHOTOGRAPHIC COLLECTIONS

The interviews with both Goddard (2000) and Van Driel (2000) provide an indication that the Mayibuye photographic archive does not own copyright of all of the collections in it's holdings. This means that careful decisions would have to be made about what photographs to digitize, and agreements with copyright holders would have to be concluded before this process can begin. From a copyright perspective, the archive would also need to re-consider it's measures for protecting digital photographs against unauthorised usage. To ensure legal restrictions, measures may include incorporating a clause to this effect in it's licensing agreements with users of the photographic collections. Another widely used protection method is watermarking of the electronic images. However, legal restrictions is probably the most binding method of protecting the use of electronic images, and it is important that mechanisms are in place to ensure that users enter into legal agreements.

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As is evident in chapter 3, many international institutions, including the Vatican library, have opted to scan low resolution images onto the Internet, which is not suitable for reproduction. The high resolution image is stored on an offline system, such as CD-ROM or Photo CD and access to these high resolution images is controlled by an institutional policy for accessing collections for reproduction. This is the most logical method of protecting an institution's copyright and distribution rights in the digital environment.

The above also applies to protecting images from being completely defaced once in electronic format. Many questions relating to the authenticity of digital images have been raised by different authors. According to Bearman (http://www.gii.getty.edu/ranch/archiving/ archiving1.html), "the proliferation of electronic information and communication systems has created a crisis of accountability and evidence. As more and more records of our society are available in electronic form, users are asking how they can be sure electronic records created in the past will be available in the future and how they can be sure those received today are trustworthy." Once again, therefore, these legal agreements are an absolute necessity. At the same time, it is also important to explore methods of encrypting digital photographs, as a possible solution to this problem. However, there is uncertainty as to whether encryption is a reliable method. This is another reason why the archival master copy of a photograph should be stored on a stable format which is read-only. To ensure that the archival master copy does not become inaccessible as a result of it's storage fomat becoming obsolete, it is important that the archival master image be copied onto other stable formats as time passes and technologies change. However, this also clarifies the approach that the original photograph or negative would still need to be preserved under the best possible storage conditions, and that there shouldn't be an over-reliance on the digital image as a preservation copy.

5.6 SELECTING PHOTOGRAPHS FOR DIGITIZATION

When selecting what photographs to digitize, it is important to consider the guidelines

mentioned in chapter three of this research. This includes the copyright status of a collection,

the consideration of user needs, the relevance and subject content of the collection, the

frequency of use and possible reasons for non-use, the physical condition of the collection,

and perhaps most importantly the costs and benefits of digitization. Costs and benefits are

naturally one of the most signicant factors to be considered.

At the Mayibuye photographic archive, it is not realistically possible to digitize the entire

collection of 70 000 images. Not only is cost a limiting factor, but it is important to bear in

mind that some photographs are rarely used. It is therefore important to weigh up the

selection factors mentioned above, and in chapter three of this research, as well as to consider

the user perspectives presented in chapter 4.

5.7 MANAGING THE DIGITIZATION PROCESS

At the same time it is absolutely essential that digitization does not happen in a haphazard

way, but that the entire process is clearly conceptualised before hand, and that every step of

the process is clearly documented. This includes ensuring that technical standards are

considered, that metadata standards are implemented, that collections to be digitized are

properly catalogued, that details about the scanning process are recorded and that staff have

the capacity to implement such programmes.

At the Mayibuye photographic archive, the first step in managing the digitization process

would be to clarify the copyright status of a collection. Catalogue records would have to be

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updated, and metadata captured onto the collections management database, which will eventually have a link to the digital image. The most affordable process would be to scan images at the highest possible quality, using the existing Apple Mac and scanning equipment, onto Photo CD. Thereafter, low resolution images could be mounted onto the Internet, for users to be able to make their own selections of photographs. Once users make a decision about which image to use, a high resolution copy could be made available to them.

However, this would call for an intensive programme of staff training in digital imaging scanning techniques, as well as the use of digital imaging software, to be able to ensure that the digital images are an acceptable copy of the original. Staff would also need to become familiar with managing the use of digital images.

5.8 CONCLUSION

Besser (1996: http://www-personal.si.umich.edu/~howardb/Papers/garmil-eastman.html) says that "by offering access to surrogate images of most of it's materials (instead of simply those on exhibition), the museum becomes less like an archive and more like a library. Museums are likely to shift from repositories which offer visitors a passive experience primarily through their exhibitions and publications, to institutions which encourage a more interactive role for visitors. The general public may shift from viewing culture as something to consume to viewing culture as something to interact with." Besser goes on to say that the authority of the institution is therefore likely to erode when a patron no longer has to visit the museum to see a particular image. He therefore sees the role of the museum curator changing. However, especially in the case of the Robben Island Museum and the Mayibuye Archive, it must be borne in mind that there are different categories of visitors which range

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from tourists to serious researchers. Except in the case of local researchers, many of the researchers are separated from the museum by geographic distance. Digitization can be seen as an important method of reaching researchers in remote areas, who have the right technology. This will not be an erosion of the museum's authority, except if there is unauthorised usage of the image. Instead, it should be borne in mind that as a national institution, the Robben Island Museum has the responsibility to act as custodians for a body of historical material, which the South African nation has a constitutional right to have access to. This is especially important when one considers that this material was illegal under the previous apartheid system in South Africa.

There is absolutely no question that digitization of archival collections in general, and historical photographic collections in particular, is in the process of dramatically changing the way in which museums, archives and libraries work. This includes the approach to archiving and dissemination of the photographic collections at the Mayibuye photographic archive.

5.9 RECOMMENDATIONS FOR FURTHER RESEARCH

5.9.1 User perspectives

The questionnaire circulated to elicit user responses on the advantages and / or disadvantages of digitization of the Mayibuye photographic collections, was distributed to corporate users only. It is important to bear in mind that other categories of users such as academic researchers, school students, other museums and casual browsers also exist, and that a more detailed user study would have to be completed, to obtain an accurate understanding of whether digitization will benefit these user communities.

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5.9.2 Technical standards

Even though this study has considered technical standards for digitizing photographic collections, a more detailed study which provides an in-depth focus on metadata standards such as the Dublin Core and Encoded Archival Description, and how these can be applied to the Mayibuye photographic archive, should be conducted.

A detailed study relating to the presentation of digitized images is also necessary. Besides archiving high resolution images on formats such as Photo CD, or mounting low resolution images for selection on the web, a more detailed study concerning the interactive nature of web-based images, and how these could play an educational role on the Internet, should be conducted.

5.9.3 Digital preservation

This research has identified digitization as an important aid to preservation. However, further research is required to look at issues of preserving the digital object. This is an area that is subject to constant research and development work, and should be monitored closely. A separate study is necessary if digital technologies are to be optimally utilised.

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APPENDIX 1:   **QUESTIONNAIRE**

1. Are you satisfied with the content of the photographic collections of the Mayibuye Archive?

☐   A. Yes

☐   B. No

2. If yes, please specify ....
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3. If no, why not? ....
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4. How frequently have you consulted the photographic collections of the Mayibuye Archive?

☐   A. Once

☐   B. 2 to 5 times

☐   C. 6 to 10 times

☐   D. 11 to 20 times

☐   E. more than 20 times

5. When consulting the photographic collections of the Mayibuye Archive, were you able to locate photographic material relevant to your area of research?

☐   A. Yes

☐   B. No

☐   C. Sometimes

☐   D. Other

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6. **Please provide details for the above answer.**

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7. **How would you rate the response times of the photographic archive for supplying copies of photographic prints?**

☐   A. Excellent

☐   B. Good

☐   C. Satisfactory

☐   D. Poor

8. **Are there any improvements that you would you like the staff of the photographic archive to consider?**

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....
....
....
....
....
....

9. **For what purposes were the photographs used?**

☐   A. In a publication

☐   B. In a film

☐   C. In a television documentary

☐   D. Other ....
....
....
....

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10. **If given the choice, what media format would you prefer to receive photographs in?**

☐   A. Photographic print in hard copy

☐   B. Digital format e.g. on a CD-ROM, Photo CD, CD-R, Zip Drive, On email etc.

☐   C. Either of the two

11. **Please provide details for the above answer.**

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12. **If your answer to question 10 is B or C, do you consider high resolution digital images as essential to your research?**

☐   A. Yes

☐   B. No

☐   C. Other

13. **Please provide details for the answer to question 12.**

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14. **What hardware facilities are available to you for receiving photographs in electronic format?**

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15. **What software facilities are available to you for receiving photographs in electronic format?**

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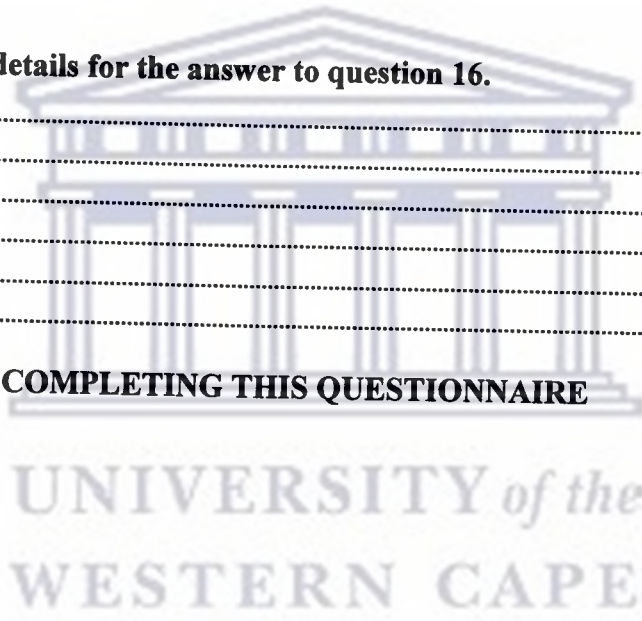
16. **Do you think that the availability of photographic images in digital format will increase your usage of the Mayibuye Photographic Archive?**

☐   A. Yes

☐   B. No

17. **Please provide details for the answer to question 16.**

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THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

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APPENDIX 2:   INTERVIEW WITH PHOTOGRAPHIC ARCHIVE STAFF

1. Target Audiences

1.1. Who are the key users of the Mayibuye Centre Photographic Archive?

1.2. How does the services provided to these users advance the mission of the Mayibuye Centre?

1.3. For what purposes are these collections utilised?

1.4. How can digitization of photographs serve these purposes?

2. Subject Content of the Collection

2.1. What subject areas does the collection cover?

2.2. Do you think that these collections will be of benefit if made available over the Internet?

2.3. If so, why?

2.4. If not, why?

2.5. Is the collection coherent i.e. is one image related to another?

3. Physical Attributes of the Collection

3.1. What is the size of the collection?

3.2. Does it require physical processing i.e. cataloguing, classification, preservation treatments etc. before it can be digitized?

3.3. What type of photographic media does the collection cover, and what are the different sizes?

3.4. What kind of preservation / conservation programmes are implemented for the collection?

3.5. What is the physical condition of the collection?

3.6. Do you think that digitization can be used as a preservation method. If so, in what way? If not, why?

3.6. To what degree is the usefulness of images, dependent on legibility of details?

https://etd.uwc.ac.za/

4. Copyright and Restrictions

4.1. Is the collection protected by copyright?

4.2. Does the Mayibuye Centre own copyright of any of the photographic images in its collections?

4.2. Are there donor or other restrictions, relating to the use and reproduction of images?

4.3. If so, to what degree could this affect the distribution of digital images?

4.4. Are there complexities involved in seeking permission from copyright holders?

5. Access

5.1. How do researchers gain access to the photographic collections of the Mayibuye Centre?

5.2. Are the catalogue records complete and dependable?

5.3. How are photographs organised, for easy access?

5.4. Does the physical condition of the original materials limit their use?

5.5. If the Mayibuye Centre decides to digitize its photographic archive, what do you think is the best way of delivering the digital versions to users?

6. Advantages of Disadvantages of Digitization within Mayibuye Centre Context

6.1. Do you think that digitization can enhance the effectiveness of the Mayibuye Centre Photographic Archive.

6.2. If yes, why?

6.3. If no, why not?

6.4. What do you see as the potential problems for digitization within the Mayibuye Centre context?