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Further information on ERPANET and access to its other products is available at <http://www.erpanet.org>.

A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (<http://europa.eu.int>).

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Executive Summary

Theater Instituut Nederland (TIN) is a complex and nationally unique organisation with a broad range of facilities, resources and capacities. It provides services for both performers and the general public, and has a growing collection of theatrical artefacts with trilateral functions of a museum, archive and library. The objective of Theater Instituut Nederland is to make a significant contribution to the knowledge of, and opinion on, Dutch theatre culture in an international context. In recent years, it has embarked on several digitisation projects for paper-based and audio-visual materials and has developed a database of Dutch theatre productions and address information from the 20th century to the present day.

The overall goal of these efforts is to increase access to information about the collection and to its contents. Due to the complexity of TIN's collection and the variety of record types it collects, some items are more suitable for digitisation than others. In addition, digitisation of some items is considered more urgent than others, especially in cases where the digitisation is carried out explicitly to preserve the object and not simply as a means to increase access. The diversity of the collection also means that objects have different functions, and varying legal and preservation requirements. This results in a digital preservation challenge of multitudinous levels.

The challenge is being tackled piece by piece. Objects are being systematically digitised, and incorporated into a database system that caters for the collection's trilateral function. TIN is drawing on the experiences and knowledge of the museum, archive and library sectors to identify and implement suitable approaches to maintaining their digital collection. The responsible department displays good overall awareness of preservation issues, not only in regards to current challenges, but also those they know they will encounter in the future. This highlights the need for good planning when addressing digitisation efforts, which must be undertaken not only with access in mind, but also the technical and financial sustainability of the resources created.

Chapter 1: The ERPANET Project

The European Commission and Swiss Confederation funded ERPANET Project¹ (Electronic Resource Preservation and Access Network) works to enhance the preservation of cultural and scientific digital objects through raising awareness, providing access to experience, sharing policies and strategies, and improving practices. To achieve these goals ERPANET is building an active community of members and actors, bringing together memory organisations (museums, libraries and archives), ICT and software industry, research institutions, government organisations, entertainment and creative industries, and commercial sectors. ERPANET constructs authoritative information resources on state-of-the-art developments in digital preservation, promotes training, and provides advice and tools.

ERPANET consists of four partners and is directed by a management committee, namely Seamus Ross (HATII, University of Glasgow; principal director), Niklaus Bütikofer (Schweizerisches Bundesarchiv), Hans Hofman (Nationaal Archief/National Archives of the Netherlands), and Maria Guercio (ISTBAL, University of Urbino). At each of these nodes a content editor supports their work, and Peter McKinney serves as a co-coordinator to the project. An Advisory Committee with experts from various organisations, institutions, and companies from all over Europe give advice and support to ERPANET.

¹ ERPANET is a European Commission funded project (IST-2001-32706). See [Hwww.erpanet.org](http://www.erpanet.org) for more details and available products.

Chapter 2: Scope of the Case Studies

While theoretical discussions on best practice call for urgent action to ensure the survival of digital information, it is organisations and institutions that are leading the drive to establish effective digital preservation strategies. In order to understand the processes these organisations are undertaking, ERPANET is conducting a series of case studies in the area of digital preservation. In total, sixty case studies, each of varying size, will investigate awareness, strategies, and technologies used in an array of organisations. The resulting corpus should make a substantial contribution to our knowledge of practice in digital preservation, and form the foundation for theory building and the development of methodological tools. The value of these case studies will come not only from the breadth of companies and institutions included, but also through the depth at which they will explore the issues.

ERPANET is deliberately and systematically approaching disparate companies and institutions from industry and business to facilitate discussion in areas that have traditionally been unconnected. With these case studies ERPANET will broaden the scope and understanding of digital preservation through research and discussion. The case studies will be published to improve the approaches and solutions being developed and to reduce the redundancy of effort. The interviews are identifying current practice not only in-depth within specific sectors, but also cross-sectorally: what can the publishing sector learn from the aeronautical sector? Eventually we aim to use this comparative data to produce intra-sectoral overviews.

This cross-sectoral fertilisation is a main focus of ERPANET as laid out in its Digital Preservation Charter.² It is of primary importance that disparate groups are given a mechanism through which to come together as best practices for digital preservation are established in each sector.

Aims

The principal aims of the study are to:

- build a picture of methods and match against context to produce best practices;
- accumulate and make accessible information about practices;
- identify issues for further research;
- enable cross-sectoral practice comparisons;
- enable the development of assessment tools;
- create material for training seminars and workshops; and,
- develop contacts.

Potential sectors have been selected to represent a wide scope of information production and digital preservation activity. Each sector may present a unique perspective on digital preservation. Organisational and sectoral requirements, awareness of digital preservation, resources available, and the nature of the digital

² The Charter is ERPANET's statement on the principles of digital preservation. It has been drafted in order to achieve a concerted and co-ordinated effort in the area of digital preservation by all organisations and individuals that have an interest and share these concerns.
Hhttp://www.erpanet.org/charter.phpH.

object created place unique and specific demands on organisations. Each of the case studies is being balanced to ensure a range of institutional types, sizes, and locations.

The main areas of investigation included:

- perception and awareness of risk associated with information loss;
- understanding how digital preservation affects the organisation;
- identifying what actions have been taken to prevent data loss;
- the process of monitoring actions; and,
- mechanisms for determining future requirements.

Within each section, the questions were designed to bring organisational perceptions and practices into focus. Questions were aimed at understanding impressions held on digital preservation and the impact that it has had on the respective organisation, exploring the awareness in the sector of the issues and the importance that it was accorded, and how it affected organisational thinking. The participants were asked to describe, what in their views, were the main problems associated with digital preservation and what value information actually had in the sector. Through this the reasons for preserving information as well as the risks associated with not preserving it became clear.

The core of the questionnaire focused on the actions taken at corporate level and sectoral levels in order to uncover policies, strategies, and standards currently employed to tackle digital preservation concerns, including selection, preservation techniques, storage, access, and costs. Questions allowed participants to explore the future commitment from their organisation and sector to digital preservation activities, and where possible to relate their existing or planned activities to those being conducted in other organisations with which they might be familiar.

Three people within each organisation are targeted for each study. In reality this proved to be problematic. Even when organisations are identified and interviews timetabled, targets often withdrew just before we began the interview process. Some withdrew after seeing the data collection instrument, due in part to the time/effort involved, and others (we suspect) dropped out because they realised that the expertise was not available within their organisation to answer the questions. The perception of risks that might arise through contributing to these studies worried some organisations, particularly those from sectors where competitive advantage is imperative, or liability and litigation issues especially worrying. Non-disclosure agreements that stipulated that we would neither name an organisation nor disclose any information that would enable readers to identify them were used to reduce risks associated with contributing to this study. In some cases the risk was still deemed too great and organisations withdrew.

Chapter 3: Method of Working

Initial desk-based sectoral analysis provides ERPANET researchers with essential background knowledge. They then conduct the primary research by interview. In developing the interview instrument, the project directors and editors reviewed other projects that had used interviews to accumulate evidence on issues related to digital preservation. Among these the methodologies used in the Pittsburgh Project and InterPARES I for target selection and data collection were given special attention. The Pittsburgh approach was considered too narrow a focus and provided insufficient breadth to enable full sectoral comparisons. On the other hand, the InterPARES I data collection methodology proved much too detailed and lengthy, which we felt might become an obstacle at the point of interpretation of the data. Moreover, it focused closely on recordkeeping systems within organisations.

The ERPANET interview instrument takes account of the strengths and weaknesses from both, developing a more focused questionnaire designed to be targeted at a range of strategic points in the organisations under examination. The instrument³ was created to explore three main areas of enquiry within an organisation: awareness of digital preservation and the issues surrounding it; digital preservation strategies (both in planning and in practice); and future requirements within the organisation for this field. Within these three themes, distinct layers of questions elicit a detailed discovery of the state of the entire digital preservation process within participants' institutions. Drawing on the experience that the partners of ERPANET have in this method of research, another important detail has been introduced. Within organisations, three categories of employee were identified for interview: an Information Systems or Technology Manager, Business Manager, and Archivist / Records Manager. In practice, this usually involved two members of staff with knowledge of the organisation's digital preservation activities, and a high level manager who provided an overview of business and organisational issues. This methodology has allowed us to discover the extent of knowledge and practice in organisations, to understand the roles of responsibility and problem ownership, and to appreciate where the drive towards digital preservation is initiated within organisations.

The task of selecting the sectors for the case studies and of identifying the respective companies to be studied is incumbent upon the management board. They compiled a first list of sectors at the very beginning of the project. But sector and company selection is an ongoing process, and the list is regularly updated and complemented. The Directors are assisted in this task by an advisory committee.⁴

³ See [Hhttp://www.erpanet.org/studies/index.php](http://www.erpanet.org/studies/index.php). We have posted the questionnaire to encourage comment and in the hope that other groups conducting similar research can use the ideas contained within it to foster comparability between different studies.

⁴ See [Hwww.erpanet.org](http://www.erpanet.org) for the composition of this committee.

Chapter 4: Theater Instituut Nederland (TIN)

<http://www.tin.nl/>

The foundations of Theater Instituut Nederland (TIN) were laid in 1924 when a group of private Dutch theatre enthusiasts founded a Theatre Museum, initially from just a few private collections. The collection and its popularity grew, and in the 1970's the Museum merged with the Dutch Centre of the International Theatre Institute (ITI) and a separate archive of stage sound and image to form the Nederlands Theater Instituut (NTI). Theater Instituut Nederlands (TIN), the current incarnation of the organisation, was formed in 1992 when NTI merged with three smaller service institutes for dance, mime, and puppetry. TIN is a non-profit foundation, with over sixty employees and a vast network of theatre contacts spreading across the Netherlands and beyond. It is funded largely through a structural subsidy from the Ministry of Education, Culture and Sciences, which amounts to seventy-five percent of their overall budget. The remainder is obtained through various project-targeted, governmental and non-governmental subsidies, or is generated directly by TIN via membership fees, entrance and service fees, rent, and sales.

TIN provides services for both performers and the public and attracts 30,000 visitors a year from the Netherlands and abroad, including professionals of all disciplines and backgrounds, amateurs, students, researchers, and the general theatre-going public. It runs an International Office that helps promote Dutch theatre abroad and organises theatre congresses, symposiums and workshops. It also acts as a Theatre Consultancy Office, assisting new groups in getting their productions⁵ staged and advising smaller groups on which productions to stage. Together, the Knowledge & Information (K&I)⁶ and the Collection & Presentation (C&P)⁷ departments maintain TIN's growing collection of theatrical artefacts, the broad focus of this study. These departments are the basis of the Theater Institute's programmes and projects and provide the main resources used by visitors. Over 10,000 people contact the Institute each year in search of information. The collection is multi-faceted, functioning as a library, museum, and archive, and has over 100,000 books and plays in several languages, over 6,000 videos, over 20,000 posters, 150,000 photographs and slides, company archives (for example, from the Dutch Opera and National ballet), thousands of programmes, and related material including musical scores, costumes, stage models, props, puppets, masks and backdrops.

Whilst the majority of items in TIN's collection are originally created and submitted as physical artefacts, an increasing amount of the holdings are being converted to, and/or managed in, digital form. Physical holdings that are suitable for digitisation, such as videos and posters, are being systematically digitised, and the department has established a database with details on Dutch professional productions spanning back to pre-1945, which is being continuously updated and backdated where possible. Digital objects are linked into the database, which has been developed with the trilateral archive/museum/library functionality the Institute requires. Objects are digitised largely to improve public access however, many of TIN's holdings are commercial in origin and protected by copyright. TIN must therefore negotiate access

⁵ The word 'Productions' is used here in the theatrical sense, i.e., the staging or presentation of a theatrical work.

⁶ Afdeling Kennis en Informatie

⁷ Afdeling Collectie en Presentatie

and provision terms with the Dutch society for mechanical copyright protection 'Buma Stemra'⁸. It also participates in a working group⁹ organised by the Dutch association for digital heritage, Digitaal Erfgoed Nederland (DEN),¹⁰ to negotiate with the Dutch Foundation 'Beeldrecht'¹¹, an organisation that assists artists in asserting and claiming their rights of authorship. Due to the copyright restrictions, access to some TIN materials is restricted to onsite visits; other materials and the database contents are freely available over the Internet.

⁸ See the Buma Stemra website:

[Hhttp://www.bumastemra.nl/InterXtranet/bsinterxtranet/home](http://www.bumastemra.nl/InterXtranet/bsinterxtranet/home)

⁹ Other organisations in this group include the Dutch Museum Association (Nederlandse Museumvereniging) and the Dutch Sheet-music foundation (Stichting Musi©opy), which protects authors rights for sheet music. See *References* for further details.

¹⁰ See the Digitaal Erfgoed Nederlands website: [Hhttp://www.den.nl/H](http://www.den.nl/H).

¹¹ See the Stichting Beeldrecht website: [Hhttp://www.beeldrecht.nl/H](http://www.beeldrecht.nl/H).

Chapter 5: Details and circumstances of the interviews

ERPANET initially approached Mr Jos Takema, director of the Dutch association for digital heritage, Digitale Erfgoed Nederland (DEN). Mr Takema kindly referred us to the collection of Theater Instituut Nederland (TIN), suggesting we contact Mr Paul Post, Head of the Knowledge and Information Department.

TIN were willing to participate and provided the time and services of Mr Post, Mr Wim Klerkx (multi-media librarian) and Mr Cees Kist (application administrator). All three are members of the Knowledge and Information Department, which encompasses database maintenance, and the library and the documentation departments. Mr Herman Carstens (video specialist) provided additional information via email concerning video-tape preservation.

The interviews took place at the TIN premises in Amsterdam on February 9th 2004 and lasted for several hours, including a demonstration of the system. Mr Kist was unfortunately unable to participate in the interview due to sickness but was available via email for questions and comments at a later date.

Chapter 6: Analysis

This section presents an analysis of the data collected during the case study. It is organised to mirror the sequence of topics in the questionnaire.

- Perception and Awareness of Digital Preservation
- Preservation Activity
- Compliance Monitoring
- Digital Preservation Costs
- Future Outlook

The collection of Theater Instituut Nederland is very diverse. It consists of multiple artefact types, from theatrical stage props, stage scripts and posters, to books, biographies, pictures, archival documents, and audio-visual materials, all of which were physical artefacts when submitted. TIN is embarking on a systematic digitisation programme for suitable holdings and is developing a digital knowledge base of Dutch theatre productions from the 20th century and beyond. This case study focuses specifically on the digital items in the collection, those being:

- Digital audio-visual materials containing plays, cabaret, music and songs;
- Digital images created from original performance items, for example, from portraits, stage pictures, posters, and promotional and marketing pictures; also from sheet music, musical scores and programmes, as well as pictures of stage props and costume items, for example dresses, jewellery, and masks;
- Database records of Dutch professional theatrical productions, including a complete list of all productions since 1983 and other data spanning back to 1950. The database also contains address information, including e-mail and website addresses, of about 2,300 professional organisations in the field of theatre in the Netherlands and Flanders, such as theatre companies, venues, festivals and training institutions;
- Archival Inventories (*not* archived documents).

Perception and Awareness of Digital Preservation

TIN is actively engaged in creating digital surrogates or representations of physical theatrical artefacts, developing a digital knowledge base of Dutch theatre productions from the 20th century and beyond, and making this information easily available and accessible to the public either online or onscreen. In most cases, digitisation is undertaken to improve public access to the materials, and in all cases, access is the primary driver behind digitisation activities. In some cases, however, although access remains the ultimate goal, it is also carried out specifically for preservation and to combat the threat of obsolescence.

Across the organisation as a whole, it is widely accepted that digitisation can be used to preserve access to analogue objects, specifically videotapes. This is especially so as more people experience first-hand the obsolescence of videotapes and recorders in their own home entertainment systems. The specific challenges of preserving objects once they have been converted into a digital format are less widely recognised. Members of the Knowledge and Information department have a good general awareness of digital preservation issues where relevant to their job, and there is some

preservation awareness amongst management, especially the Head of the Knowledge and Information department; however, with the exception of the digitisation of videotapes, this is not reflected in written policies, probably because the mainstays of the collection are the physical artefacts themselves. Nonetheless, the profile of the digital collection within the organisation is increasing due to the many compliments and good feedback they have received from users and guests.

TIN relies a great deal on the experiences of other similar institutions to achieve their aims, drawing on their trilateral function as a museum, archive, and library to benefit from the diverse experiences of all three professions. All three are explicitly aware of the issues surrounding the preservation and maintenance of a variety of digital artefacts, and have established programmes and strategies to address it staff have been able to utilise or expect to utilise in the future. In the Netherlands this is reflected through the activities of the National Archives (NA)¹², the Royal Library (KB)¹³, the Dutch association for Documentary Information Management and Archival Legislation (DIVA)¹⁴, the Dutch association for Digital Heritage (DEN), and SIMIN, the information services section of the Dutch Museum Association¹⁵.

The main problems

TIN perceives the first problem of digital preservation as the digitisation process itself. The digitisation process must be carefully designed to ensure that when the digital version replaces the original, it represents the original artefact in all essential respects. Essential respects differ for different objects, and when digitisation is employed to increase access, there is not always a complete representation; for example, the costumes are only digitised from one side, without 3-D effects. Second is the maintenance of the new digital representation; how to keep it sustainable through time and migrate it without loss of information. TIN has drawn upon research from the Royal Library, the Netherlands Institute for Sound and Vision (NIBG)¹⁶ and the Netherlands Media Art Institute (hereafter referred to as *Monteideo*)¹⁷ to address both these challenges. Staff also keep up-to-date with relevant developments in the library, museum, and archive sectors, especially those in the Netherlands.

TIN expects that it will have to deal with increasing amount of digital materials in the future, including those that are 'born digital'. The forthcoming announcement from the Council of Culture¹⁸ is expected to increase the number of organisations depositing their archives with TIN. These organisations are themselves increasingly maintaining their records and archives in digital form, and although they have to-date deposited records in physical format only, this will soon change. For example, TIN is expecting the next deposit from the Dutch Opera and National Ballet Company to be in digital form. Both the scale and the complexity of the collection will increase.

This increase poses significant challenges. Not only are the objects materially and technically diverse, they also have varying functions as library, museum, or archive pieces. These factors mean that they have varying requirements for preservation from legal, technical, and records-management perspectives. Identifying, implementing, and

¹² Nationaal Archief/National Archives website: [Hhttp://www.nationaalarchief.nl](http://www.nationaalarchief.nl).

¹³ Koninklijke Bibliotheek/Royal Library website: [Hhttp://www.kb.nl](http://www.kb.nl).

¹⁴ DIVA website: [Hhttp://www.divakoepeel.nl/centrum.html](http://www.divakoepeel.nl/centrum.html).

¹⁵ TIN's webmaster is a board member of SIMIN: [Hhttp://www.simin.nl](http://www.simin.nl).

¹⁶ Nederlands Instituut voor Beeld en Geluid/ Dutch Institute for Sound and Vision website: [Hhttp://www.beeldengeluid.nl/index.jsp](http://www.beeldengeluid.nl/index.jsp).

¹⁷ Nederlands Media Art Instituut/Monteideo: [Hhttp://www.monteideo.nl/H](http://www.monteideo.nl/H).

¹⁸ Raad voor Cultuur/Council of Culture website: [Hhttp://www.cultuur.nl/frames.html](http://www.cultuur.nl/frames.html).

managing these varying requirements will become more challenging as the diversity of the digital collection increases.

Regarding public accessibility of the objects, a further problem is caused by copyright regulations. This is discussed below.

Asset value and risk exposure

Most of the materials in TIN's collection can be digitised in some way, but some items are more suited to digitisation than others. For example, many costume items have been digitally photographed; whilst the digital version captures an accurate image of the object, one must obtain the costume itself in order to use it. In most cases, the digital collection should thus be considered as complementary to the physical one, rather than as a replacement.

Digital videotapes are the notable exception to this. In recognition of the limited lifespan of analogue videotape, TIN collaborated with Montevideo and benefited from a Montevideo investigation into which digital carrier was preferable for the long term. Digitisation is considered necessary simply to save this particular resource, and the value of the digital tapes is widely recognised in the organisation. Other materials are considered as less of a risk, as the physical artefacts from which they were generated are in no danger and are simultaneously preserved in their original format. The database, however, has no paper equivalent and its knowledge value is increasingly recognised by both management and users.¹⁹ Organisational appreciation of the entire digital collection is increasing with positive user feedback and should increase when the organisation begins receiving records in only digital format.

TIN has minimised the risk of obsolescence by following externally developed (and nationally accredited) programmes for image digitisation, in which standards have been used that are also useful for preservation purposes. It has not been considered necessary to carry out a broader risk analysis study.

TIN's decision to make as much information as possible publicly available on the Internet is indicative of the value placed on their collection as a whole. The decision to do so was led by the results of a public access business needs analysis, reflecting the value of the collection and the importance of making it widely accessible.

Regulatory Environment

Legal issues surrounding access to digital records at TIN are focussed around copyright law, particularly in regards to their collection of music and musical scores. Much of TIN's sheet music is still under copyright protection, causing problems not only with publishers but also with copyright institutions protecting the original works. In some cases, TIN can contact the authors or inheritors of the music and gain permission to publish it. In other cases the situation is more complex, requiring TIN to work closely with the Stichting beeldrecht (the Dutch copyright organisation for expressive artists), Buma Stemra (the Dutch music copyright organisation), and the Stichting Musi©opy (for sheet music), with whom it wishes to be interoperable. As a result of the stringent copyright legislation, many of the digital content object files are only accessible on the TIN premises.

¹⁹ This indicates a link between perceived value and perceived risk; the higher the perception of a risk to a resource, the more its value is recognised.

TIN currently has no legal obligation to preserve any of the records or artefacts in their collection.

Preservation Activity

TIN has drawn on the experiences of other Dutch organisations to devise a suitable approach towards creation and maintenance of their digital holdings. Programmes established by the KB have been utilised for conversion to both microfilm and digital formats, and collaborative research with Montevideo has identified a suitable media format for videotape. The department also keeps up-to-date with the activities of related groups, such as the Dutch Records Management Convention (RMC), the Archiefschool, the Dutch National Archives, and the Flemish/Vlaams Theatre Institute²⁰, to cater for the expected growth in their collection and to ensure that effected approaches are interoperable and transferable.

Policies and Strategies

Digital preservation is not widely reflected in TIN's policy framework. Maintenance of the systems and their digital content is a responsibility of the IT team and, as we have seen in several other erpaStudies, it is not considered necessary to cover this as a separate policy issue.²¹ The only exception is the preservation of videotape, where digitisation is considered necessary for the item to survive. A specific policy is in place for the preservation and digitisation of these videotapes, but it is a stand-alone policy not linked to the other media and record types collected by the Institute.

The IT team have produced a written statement and plan outlining their objectives with their multi-media theatre encyclopaedia, which is an important aspect of their system, but this does not have the status of a policy document. The statement commits them to making information available and re-using information wherever possible. It also covers some content issues, for example, the entry of biographical information in as full and complete a form as possible. This statement applies only to the IT team; however, as the IT team is spread across three departments (Public Relations, Management, and K&I), they have the opportunity to promulgate their objectives more widely than would otherwise be expected.

Strategies for preservation are largely access oriented. For the videotapes, preservation and access are considered interdependent: there can be no access in the future if the videotape is not converted and 'preserved' now in digital form. Thus, a strategy has been developed that explicitly accounts for preservation. For the rest of the collection, a digital access strategy has been developed using nationally developed and government-funded programmes. These programmes are being funded for the long term, and it is in their own best interests to recommend an access strategy that is robust and that will persist for as long as it is currently feasible to do so. TIN's approach can thus be considered as access-driven with implicit consideration of digital longevity. The approach is reassessed roughly once every four years by the IT department, who are also responsible for its implementation.

²⁰ See Chapter 8 for references.

²¹ For example, ERPANET studies on the NHDA, Tessella Support Services plc, and the Deutsche Presse-Agentur.

Selection

There are clear acquisition criteria in place regarding the initial collection of source (i.e. physical) materials. TIN collect as much material as possible from each production according to their written selection criteria, and select the best examples for retention in their collection. Additional materials from other sources are also collected on an ad hoc basis. A description of all of the selected material is then entered into the database, including textual database entries on the play itself (such as information concerning actors, addresses, theatre company details, and dates of production).

Many of the physical materials submitted are suitable for digitisation, for example, posters, photos, programmes, musical scores, and promotional leaflets, but with the exception of the videotapes (discussed above), there is no written selection policy for digitising objects. The general approach is that unique items must be retained and considered for digitisation. Non-unique items may also be retained and digitised, but they are not a priority. The K&I and C&P departments together carry out a preliminary selection of materials for digitisation that is then put to the Management team for discussion and final selection.

Materials are also selected for digitisation in conjunction with national digitisation or preservation projects, in particular the Geheugen Van Nederland (GvN) project²². Geheugen van Nederland is a project of the KB that undertakes digitisation of important parts of the Netherlands cultural heritage so it can be better accessed by people interested in history and culture, especially students and teachers in secondary schools.²³

There is no retention policy regarding the physical collection, but items are sometimes disposed of, for example, out-dated English-language books, the value of which amortises in a Dutch library collection. Items in the digital collection similarly have no retention schedule and all can be considered as intended for the long term.

Preservation

TIN's approach to preserving their growing digital collection hinges on their database, which maintains the links between physical and digital objects and records. Their database system was first installed in 1990. It is a commercial library system named ADLIB, which has since been adapted to incorporate museum and archive functions in line with TIN's needs.²⁴ Productions form the backbone of the database and each is identified by an internally unique production code. The contents include a complete list of all productions since 1983 and other data spanning back to pre-1945, as well as descriptive entries (for example, of books, letters, stage scripts, and book titles) and

²² See the Geheugen van Nederland website: [Hhttp://www.geheugenvannederland.nl/H](http://www.geheugenvannederland.nl/H).

²³ Although access is the primary motivation behind the project, GvN are also committed to maintaining the availability of the digital files after the end of the project (end 2003).

²⁴ See the ADLIB website: [Hhttp://www.adlibsoft.com/H](http://www.adlibsoft.com/H). ADLIB originally began as a library system. It can now be oriented as a library, museum, or archival system. However, only the Library model was available when TIN installed their system. They have therefore adapted the original system and enhanced it to cater for their trilateral function as a archive/museum/library institute. This work was initially carried out in conjunction with the Netherlands Dance Institute and the Flemish Theatre Institute, a description of which can be found at [Hhttp://www.theatrelibrary.org/sibmas/congresses/sibmas92/lisb12.htm](http://www.theatrelibrary.org/sibmas/congresses/sibmas92/lisb12.htm).

digital representations of theatrical objects (described below). In all, there are about 250,000 individual records in the database.²⁵

Objects from which digital images have been taken and entered into the database include a collection of about 11,500 Dutch theatre songs from sheet music, about 10,000 drawings and etchings (estimated to increase to 20,000 by the end of the year), 1,500 costumes, 125 paintings and about 15,000 posters. Digitisation takes place according to the GvN project guidelines, sometimes within the scope of the project itself, other times by TIN via an external agency. GvN has established a fixed set of procedures to create TIFF images of the different objects; the procedure differs according to the nature of the original artefact. Programmes, reviews, drawings and etchings, are scanned directly from the originals, but other materials undergo a different procedure. Materials intended for GvN that are suitable for microfilming, such as sheet music, are first microfilmed in the KB's *Metamorfoze* project. GvN then uses the microfilm version to create TIFF images. This is done for several reasons; not only is it technically easier and cheaper to create the TIFF image from microfilm, rather than paper, but microfilm has also been perceived by the KB to be the more durable of the two. Thus when further digitisation efforts are required in the future, a new digital version will be made from the microfilm rather than the paper, thus limiting the damage that is caused to the paper by repeated exposure to touch and light.²⁶ Quality concerns, however, may change this perspective in the future. A scan from a microfilm is at least a second-, sometimes third-hand copy, and the quality is not always very good. Nowadays, scanning from the original is becoming cheaper, and TIN is keen to re-assess the new possibilities this may bring.

The KB carries out conversion quality control and both the contributing organisation (in this case TIN) and the GvN project store copies of the resulting images. Quality control is necessary to ensure the success of the procedure, and close analysis has identified specific pitfalls to avoid in this type of conversion. For example, some images were not perfectly aligned when first microfilmed. The microfilmmers had solved this by simply cropping the microfilm at an angle to fit. However, this resulted in the horizontal thread of the microfilm running askew across the record. Upon conversion to digital form, this resulted in jagged lines running off centre across the scanned images, and the textual characters in the new digital image were corrupted. The procedure had to be started again from the originals and could not be resolved using the microfilm version.

Theatrical reviews are scanned and saved in Adobe's Portable Document Format (PDF), and videotapes are converted to MPEG 2 format.²⁷ Research with the Nederlands Media Instituut and NIBG concluded that Digital Betacam was the most suitable media option for archival storage of video as it has a much lower rate of compression than many other modern formats. Despite this, the Theater Institute has selected DVC-Pro²⁸, a semi-professional, international standard developed by a consortium of ten companies. The video is sampled at the same rate as Digital Betacam, although colour information is sampled at a lower rate. This alternative

²⁵ The word 'record' is used here in the technical sense of the word, i.e., a row of data in a database.

²⁶ This approach is explained by access, rather than preservation. The digital objects are being created to improve access. The microfilm versions are created for preservation. Digital versions are made from the microfilm to enhance access, and are not created with the intention of lasting forever. However, the fact that the digital files have been created in a widely recognised non-compressed format means that they have potential to last for the long term if properly managed and migrated.

²⁷ Bit rate of 5mb per second. Access is provided in WMV format, Windows Media Video (high definition).

²⁸ For more information on DVCPRO see: http://en.wikipedia.org/wiki/DVC_Pro.

selection was due to two considerations: not only are costs of materials and equipment lower; but also the quality of most of TIN's videotapes is not sufficiently high that migration from S-VHS, UMATIC/Beta SP and/or BVU to DVC Pro would result in the loss of information. It was therefore deemed sufficient for TIN's needs. TIN is also considering saving them on a hard disk RAID server in the future.

Metadata follows a TIN-schema that is based on the International Standard Bibliographic Description (ISBD).²⁹ They considered using MARC and Dublin Core but found Dublin Core to be insufficiently detailed and that MARC used the same basic information as them but structured it differently. They have not yet experienced the need to migrate metadata to a standard format although they are considering embarking on an EAD³⁰ project for their archival descriptions with the Flemish Theatre Instituut (VTI)³¹. Metadata is manually entered into the database by TIN staff, although they are keen to make the procedure more efficient by utilising e-forms that depositors can submit with their holdings. The internal thesaurus was developed by TIN in conjunction with other theatre science libraries and is now also used by the theatre libraries of the 'Theaterscholen'³²

The ADLIB system contains the majority of information to be stored for the long term, excepting videotapes, which are stored separately. Data is stored on a separate and secured part of the network server. Redundant copies of the scanned images are retained on CD or DVD, as received from the KB. There is no schedule in place for migration or refreshment of any of the material.

Access

For access purposes, videos are converted to a WMV³³ format and images are converted to JPEG³⁴. JPEG is often considered more suitable for Internet access than TIFF because of the smaller (compressed) file size and consequently faster download time. A copy of the ADLIB system is made once a month and a limited version (that accords with copyright restrictions) is hosted on the web server. TIN has approximately 3,500 members, many of which regularly use the website. The amount of annual visits to the site is actually much higher, in the region of 400,000 per annum.

Data records and some of the images, including digital photographs of stage props and costume items, and some photographic portraits, can be accessed over the Internet at the TIN website. However, due to the stringent copyright legislation, sheet music, audio-video materials, most theatre posters and theatre pictures, and production reviews cannot be hosted on the Internet and users must visit the TIN premises in Amsterdam to view them. Internet descriptions of letters are also limited because of data protection and privacy laws. In addition to this, audio-visual materials can only be accessed onsite. However, in all cases, there is still an online and publicly accessible, searchable description database of the objects, and many of them can be reserved online for use at a later date on the premises.

²⁹ See the ISBD website: [Hhttp://www.ifla.org/VII/s13/pubs/isbd.htm](http://www.ifla.org/VII/s13/pubs/isbd.htm).

³⁰ EAD – Encoded Archival Description. See the EAD website: [Hhttp://www.loc.gov/ead/H](http://www.loc.gov/ead/H).

³¹ Flemish Theatre Institute/Vlaams Theater Instituut: [Hhttp://www.vti.be](http://www.vti.be).

³² Theatre Schools. Theatrical departments of university libraries also used this thesaurus before joining PICA, an OCLC European Libraries Co-operative.

³³ WMV format – Windows Media Video (high definition). WMV is a generic name for Microsoft's streaming technologies. See [Hhttp://en.wikipedia.org/wiki/Windows_Media_Video](http://en.wikipedia.org/wiki/Windows_Media_Video) for further information.

³⁴ GvN also hosts copies of the images at its own website.

TIN is keen to place as much material on the Internet as possible. However, it is clear to staff that they must find solutions to the issues of copyright and privacy before this can be fully achieved. Staff are working with copyright owners to obtain permissions wherever possible and to identify materials where copyright has lapsed, allowing them to increase the amount of materials available online.

Compliance Monitoring

In the absence of written and clearly defined policies on preservation, there is little compliance monitoring taking place; indeed, there are no formal procedures in place for auditing any of the digital collection. As mentioned, the KB carries out conversion quality control of material converted under the GvN project to ensure that the digital images are of sufficient quality, but no formal checks are made on the preserved material for any signs of degradation.

Digital Preservation Costs

Funding for digitisation projects is available from a number of sources, including Metamorfoze and Geheugen van Nederland, both of which are projects from the Royal Library. Additional funds are also available from the Mondriaan Stichting³⁵, a cultural organisation that supports and stimulates projects relating to art, design, and museums, and other smaller public funds.

TIN has not undertaken a cost benefit analysis concerning their investments in preservation, likely because they are still focussed on improving access rather than explicitly preserving unique digital material. Preservation is not budgeted for separately and the money allocated for technical work³⁶ must cover all of the activities concerning maintenance of TIN's digital resources. Money for digitisation projects is usually allocated on a project basis from external funds; this means that in the future TIN will have to source additional money to maintain the objects created in these projects. In addition, money will be required for preservation of the born digital objects that the Institute expects to begin receiving in the near future. This is an issue ERPANET have observed with other digitisation projects and one that is yet to be fully addressed.

TIN would like to see more funding in the future, especially regarding the copyright issue, academic projects, and technical aspects of preservation. Government could potentially play a strong role in this.

The value of TIN's digital collection does not amortise but is slowly growing with time. Preserving it through time will thus likely assume more explicit priority in years to come.

Future Outlook

TIN is unsure for how long their current approach to digital preservation will last, but expect that it will be 'okay for a few more years yet'. Staff are confident that the amount of funding allocated to digitisation efforts will increase as appreciation of the collection rises. However, long-term sustainability of the collection is not necessarily a factor appreciated by the funding bodies.³⁷ As noted in other studies,³⁸ funding for digitisation

³⁵ See the Mondriaan Foundation website: [Hhttp://www.mondriaanfoundation.nl/start.aspH](http://www.mondriaanfoundation.nl/start.aspH).

³⁶ In Dutch, this is more commonly referred to as 'Automatisering'.

³⁷ This also became apparent at the ERPANET training event on Appraisal of Scientific Data, held in Lisbon in December 2003. See [Hhttp://www.erpanet.org/events/2003/lisbon/H](http://www.erpanet.org/events/2003/lisbon/H) for further details and session report.

is often provided solely to improve access to the collection. Preservation of the resources has yet to be financed from elsewhere. This is likely to be a major problem for many organisations.

The Institute is keen to see more of its collection available online, including background and biographical information, and descriptions, and would endeavour to do so should funding be made available to them. In the future, TIN intends to make its approach more comprehensive and incorporate more items in their digital collection. It wishes to be interoperable where it matters – for example, with the copyright organisation Buma Stemra, as well with other libraries, museums and archives – and, in a similar vein, to work more closely with the mainstream Archive/Library museum institutions and follow their developments. Learning from other organisations has played a large part in the development of TIN's approach to date; no doubt it will continue to do so.

³⁸ See for example, the ERPANET study on the Tate museum (UK, [Hhttp://www.erpanet.org/studies/index.phpH](http://www.erpanet.org/studies/index.phpH)).

Chapter 7: Conclusions

TIN is just beginning to preserve digital information. Although it has created digital resources with the intention of improving access, it has done so using technology that is conducive to effective preservation. Two main facts support this: firstly by the necessity of the sustainability of digital resources created with public monies; and secondly by the interests of the staff of the collections department, who display awareness of the entire lifecycle of digital records and are thus aware of the need for sustainability when creating digital resources. The items that have been digitised so far thus stand a good chance of persisting through time if managed effectively and with a view to both access *and* preservation.

However, the fact remains that much of the digital collection has been developed without *explicit* consideration for preservation. This means that organisational policies have not been developed, strategies are oriented on providing access, and there is a risk that the particular requirements of the different objects, their differing functions and requirements, will be overlooked. As discussed in the study, the absence of explicit preservation considerations is likely due to the fact that most of the collection still exists in physical form, but as this situation is likely to change in the near future with the accessioning of born digital objects, TIN will benefit from acting now, at an early stage, to avoid these problems later.

TIN must tackle digital preservation on many different levels, so the challenges it faces are complex. Notwithstanding the complexity in the collection arising from relationships between the digital and physical objects, the challenge will be exacerbated by further growth and diversity of the digital collection as more objects are digitised and a range of born digital objects are ingested. The materials have different functions – some library, some museum, and some archive - and managing the relationship between the requirements of the original source object and the new digital files causes further intricacy. Additionally, the collection itself will be split across more than one media carrier – video on one media, images on another, and so forth.

Whilst significant, these challenges are not insurmountable. The challenges are tempered by the diverse functionality of the database system they have implemented. TIN is also digitising in stages, which allows time for the challenges of each unique record type and its digital counterpart to be appreciated. Sound digitisation practices, employed initially to improve access, can often form the building blocks of a viable digital preservation strategy. TIN has applied such practices, and whilst they are initially access measures, they are simultaneously advantageous in terms of digital longevity and minimise the instability of the resources created.³⁹ If TIN sets out to do so, then it should be able to preserve its digital collection through time. Given the complexity and diversity of their collection, this will be most successfully achieved in the context of a clear, written, comprehensive, and structured strategy that incorporates explicit activities and funding for preservation instead of assuming it as an implicit part of access.

Addendum

Since this study was completed, TIN has embarked upon a pilot project with the KB to develop a TIFF archive of the images digitised under the GvN project, hereby beginning to address the long term sustainability of the objects.

³⁹ This approach – whereby sound digitisation practices lead to improved preservation prospects – has also been observed in other ERPANET case studies. The ERPANET study on the Tate museum is again a good example.

Appendix 1: References

Theater Instituut Nederland, TIN (Dutch Theatre Institute) website: <http://www.tin.nl/>

ADLIB website: <http://www.adlibsoft.com/>

Archiefschool (Archive School) website: <http://www.archiefschool.nl/>

Beeld en Geluid (Dutch Institute for Sound and Vision) website:
<http://www.beeldengeluid.nl/index.jsp>

Buma Stemra (mechanical copyright protection) website:
<http://www.bumastemra.nl/InterXtranet/bsinterxtranet/home>

Digitale Erfgoed Nederlands, DEN (Dutch Digital Heritage) website: <http://www.den.nl/>

DIVA (Documentary Information Management and Archival legislation) website:
<http://www.divakoepel.nl/>

Encoded Archival Description, EAD website: <http://www.loc.gov/ead/>

Het Geheugen van Nederland (The Memory of the Netherlands) website:
<http://www.geheugenvannederland.nl/>

Het Nationaal Archief van Nederland (The Dutch National Archives) website:
<http://www.nationaalarchief.nl/>

ISBD (International Standard Description for Bibliographic Resources) website:
<http://www.ifla.org/VII/s13/pubs/isbd.htm>

Koninklijke Bibliotheek (Royal Library) website: <http://www.kb.nl/>

Metamorfoze website: <http://www.metamorfoze.nl/>

Mondriaan Foundation website: <http://www.mondriaanfoundation.nl/start.asp>

Nederlands Instituut voor Mediakunst (Netherlands Media Art Institute/Montevideo)
website: <http://www.montevideo.nl/>

Nederlandse Museumvereniging (Dutch Museum Association) website:
<http://www.museumvereniging.nl/>

Raad voor Cultuur (Council of Culture) website: <http://www.cultuur.nl/frames.html>

Records Management Conventie (RMC) website: <http://www.rmconventie.nl/>

SIMIN website: <http://www.simin.nl>.

Stichting Beeldrecht (Dutch Visual Arts Rights Foundation) website:
<http://www.beeldrecht.nl/>

Stichting Musi©opy (Sheet music copyright Foundation) website:
<http://www.cedar.nl/musicopy/index.html>

Vlaams Theater Instituut (Flemish Theatre Institute) website: <http://www.vti.be/>

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