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Further information on ERPANET and access to its other products is available at [Hhttp://www.erpanet.org](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 ([Hhttp://europa.eu.int](http://europa.eu.int)).

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Executive Summary

The Belastingdienst is the Dutch national tax and customs agency, responsible for the levy, collection, and control of national taxes across the country. The bulk of its work incorporates the processing of over six million citizens' and one million business tax returns annually. Since 1996, the Belastingdienst has offered citizens a multi-channel service delivery, i.e., the choice of submitting their annual returns on paper or electronically via a diskette sent through the postal system, and a few years later, electronically over the Internet. The number of electronic returns has increased each year, with approximately seventy-five percent submitted electronically in 2004. From 2005 onwards, electronic returns will be compulsory for business declarations on BTW (VAT) and wages tax on employees.

This case study focuses on the procedures the Belastingdienst has established for the processing and analysis of citizens tax returns, procedures which have been fully digitised regardless of the initial delivery format but that are nonetheless tailored for the unique requirements of each. In the absence of a rigorous legal context for electronic service delivery and processing, the Belastingdienst has instigated independent research to determine the requirements and legal admissibility of their procedures that is fundamental to organisational and public acceptance of their approach. Due to the relatively short retention period for such tax data, which is only between seven and twelve years, the axis of their approach is not so much on identifying technical solutions to avoid technological and format obsolescence, but on the definition of and dogmatic adherence to strictly defined procedures which ensure that any and all conversion processes and the storage environments still result in the authentic, correct, and complete preservation of records that can be accessed in a timely manner. These processes are to be audited on a regular basis by an independent but affiliated government Auditing service and will result in certification of the Belastingdienst Digital Archiving System when the process is more fully established.

The ERPANET Project

The European Commission and Swiss Confederation funded ERPANET Project¹ (Electronic Resource Preservation and Access Network) is working 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 coordinator to the project. An Advisory Committee with experts from various organisations, institutions and companies from all over Europe gives advice and support to ERPANET.

¹ ERPANET is a European Commission funded project (IST-2001-32706).

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 has conducted a series of case studies in the area of digital preservation. These include five sectoral case studies involving a number of companies or organisations operating in the following sectors: broadcasting, pharmaceuticals, publishing, retail and telecommunications. These are supplemented by individual case studies focusing on companies and organisations from a diverse range of sectors. The case studies, of varying length, 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 comes not only from the breadth of companies and institutions included, but also through the depth at which they explore the issues.

ERPANET has deliberately and systematically approached disparate companies and institutions from industry and business to facilitate discussion in areas that have traditionally been unconnected. With these case studies ERPANET is broadening the scope and understanding of digital preservation through research and discussion. The case studies are published to improve the approaches and solutions being developed and to reduce redundancy of effort. The interviews have identified current practice not only in depth within specific sectors, but also cross-sectorally: For example, what can the publishing sector learn from the aeronautical sector? Eventually it is aimed 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 for disparate groups to be 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 studies are:

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

² The Charter is ERPANET's statement on the principles of digital preservation. It was drafted in order to achieve a concerted and coordinated effort in the area of digital preservation by all organisations and individuals who have an interest and share these concerns.
http://www.erpanet.org/www/content/documents/Digitalpreservationcharterv4_1.pdf

Sectors were selected to represent a wide range of information production and digital preservation activity. Each sector presents a unique perspective on digital preservation. Organisational and sectoral requirements, awareness of digital preservation, resources available, and the nature of the digital object created place unique and specific demands on organisations. Each of the case studies is 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 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 by 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 were targeted for each study. In reality this proved to be problematic. Even when organisations were 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 are especially worrying. On some occasions 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 particular case studies. In some cases, however, the risk was still deemed too great and organisations withdrew.

Method of Working

Initial desk-based sectoral analysis provided ERPANET researchers with essential background knowledge. They then conducted 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 record-keeping 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 elicited 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 was 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 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 was incumbent upon the management board. They compiled a first list of sectors at the beginning of the project. But sector and company selection was an ongoing process, and the list was regularly updated and complemented. The Directors were assisted in this task by an advisory committee.⁴

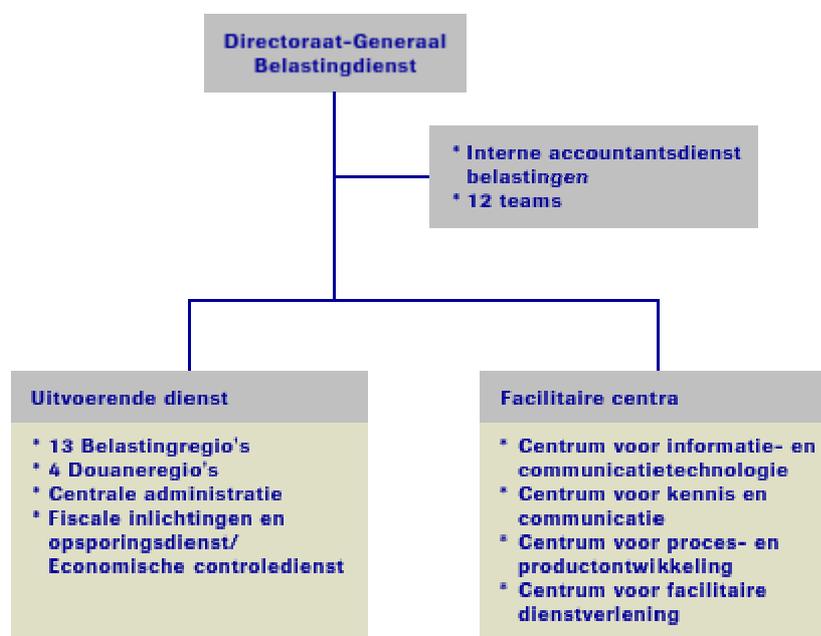
³ We have included the questionnaire to encourage comment and in the hope that other groups conducting similar research can use the ideas contained within it to foster comparability between different studies.

⁴ See <http://www.erpanet.org/> for the composition of this committee.

Chapter 4: The Belastingdienst

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

The Belastingdienst is a part of the Dutch government Ministry of Finance and is responsible for the levy, collection, and control of national taxes against citizens and businesses across the Netherlands. It is also the Dutch customs and excise agency. As one of the largest government agencies in the Netherlands, the Belastingdienst employs over 30,000 staff dispersed across thirteen tax regions and four customs regions, with a number of offices in each region. It is headed by the Belastingdienst Director General, who belongs to a team of Director Generals for each of the Ministry of Finance's main branches including the Treasury. In addition to the thirteen tax and four customs regions, the organisation is further comprised of a department for fraud investigations, a central administration department, and four Facilities centres: B/CFD – facilities service delivery; B/CICT – information and communication technology; B/CPD – process and product development, and; B/CKC – knowledge and communication. There is a separate IT Auditing service based in Apeldoorn that is also part of the Ministry of Finance.



The Belastingdienst receives and is responsible for processing many types of tax returns, the two most prolific being the annual returns for citizens and businesses. Over six million private citizens and one million businesses are liable for these annual returns. Any person or company receiving one of these tax forms from the Belastingdienst is required by law to return it by a specified date, with different types of tax returns applicable to different situations, for example, students, couples, people with income from abroad, single persons, etc. This has historically taken place through the use of paper tax returns, long and complicated forms that required recipients to read through every section and answer those questions applicable to their situation. Since 1996, citizens have been able to make electronic tax declarations and could submit annual tax returns in one of two ways: on paper, or; electronically via a diskette. In 2002, these options were increased to include electronic submissions over the Internet. Beginning in 2005, returns of some types of business declarations must be submitted in electronic form and it is expected that

other types of returns (for example, for death duties and inheritance tax), will eventually follow suite.

B/CFD – facilities service delivery – is the department responsible for facilities management across the many geographical offices, including records management. This group is investigating the use of a Document Management System (DMS) for the entire organisation. Furthermore, it must devise and implement processes to ensure the safe and authentic processing and storage of completed tax returns. One of the obstacles in achieving this with digital records is that at this moment, although Dutch tax and archival legislation⁵ applies to both paper and digital records, archival legislation does not specify the exact requirements for paper records converted to digital form, i.e., digitised records.⁶ In order to ensure that it was following a legitimate approach, in 2002 the Belastingdienst instigated independent research which concluded that it must meet the same requirements for both paper and digitised records. The research further showed that the legislation is no obstacle to preserving records in digital format, as long as the records can still be proven to be correct, authentic, complete, and provided in a timely manner. Thus the approach for both conversion and preservation of all digital tax return data is founded upon principles of authenticity and data integrity according to an established and audited conversion (where applicable) and preservation process.

This study focuses on the procedures established to manage and preserve citizens tax returns. Internal administrative records and the customs division are not foci of this report.

⁵ De Algemene wet rijksbelastingen (Awr), available from <http://wetten.overheid.nl/cgi-bin/sessioned/browsercheck/continuation=19906-002/session=149187889564721/action=javascript-result/javascript=yes>. Archiefwet 1995, available from <http://www.nationaalarchief.nl/archiefbeheer/archiefzorg/archiefwet/>.

⁶ It does however specify requirements for digital records. It also specifies requirements for substitution of original records with an alternative format and this is thus the basis upon which the Belastingdienst has developed its approach to ensuring digitised records are legitimate (although the legislation was not created with substitution of paper for digital in mind).

Chapter 5: Details and circumstances of the Interviews

The Belastingdienst were initially approached by ERPANET in September 2003. Despite their interest in ERPANET, staff were engaged in innovating digital document management at the Belastingdienst so requested that we contact them again the following summer. Following attendance of some of their staff at the ERPANET Audit and Certification workshop⁷ in Antwerp, April 2004, they once again expressed interest and contacts were re-established. After an initial visit by ERPANET staff to the Belastingdienst offices in Utrecht on July 7th to discuss participation, interviews were arranged for August 12th 2004 at the Belastingdienst B/CFD offices in Utrecht.

Interviewees consisted of a member of the Belastingdienst management team, Mr John van Grinsven, ICT architect Mr Ton Strijbosch, and the document management co-ordinator Mrs Petra van Santen, who was also our primary contact. Furthermore, IT auditor Mr Ronald van der Steen of the Audit service supplied information the following month on auditing and monitoring procedures via telephone and email.

⁷ Papers and presentations from this workshop are freely available at the ERPANET website, <http://www.erpamet.org>.

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

Perception and Awareness of Digital Preservation

Digital document management and preservation have recently assumed greater significance within the Belastingdienst, especially at managerial levels and for the Director General, where there is growing recognition of the strong connections between core and supporting business processes. However, there is not a great deal of awareness regarding long term digital preservation issues in most of the organisation due to a focus on core-business operational aspects and the limited retention periods for most tax returns currently managed in digital format. Despite this, the IT department and digital document management personnel have significant knowledge of the subject, with both parties aware of both the technical issues and archival issues surrounding digital preservation. Communication between these two groups is fundamental to this, supplemented by knowledge from external networking and organisations such as the Stichting ICTU⁸ (responsible for hosting the E-Government knowledge centre⁹ and the produce of the Digital Longevity Taskforce¹⁰). Other groups such as the Stichting SOD¹¹, and some commercial organisations were also cited, although the IT specialist reported little coverage of digital preservation and authenticity issues in commercial technical literature.

Within the sectors of government and national tax bodies, interviewees reported a recent increase in recognition of digital preservation issues. Digital preservation is frequently becoming an issue of discussion in government circles and is also achieving greater recognition in national tax organisations with the increase in use and uptake of digital tax returns¹², although preservation issues are not always made very explicit within the latter group as retention periods for tax data are often limited to less than ten years.

⁸ See the Stichting ICTU website: <http://www.ictu.nl>. ICTU is the umbrella foundation for Dutch E-government projects.

⁹ For more information on the E-government knowledge centre, see: <http://www.elo.nl>.

¹⁰ Produce from the Digital Longevity Taskforce is available at the E-government knowledge centre website, op cit.

¹¹ See the Stichting SOD website: <http://www.sod-opleidingen.nl>. This organisation offers education and courses in document management and administration.

¹² Electronic tax and customs services account for almost a quarter of the services identified by the European Commission as benchmark indicators of a country's progress in achieving electronic government for citizens and businesses. These services are measured annually in European Commission benchmarking exercise and all of the countries in the European Union are working towards providing these services in electronic form. For more information on this, see http://europa.eu.int/information_society/eeurope/2005/all_about/benchmarking/index_en.htm.

The Main Problems

The main challenges for the Belastingdienst involve the finer details of its approach that allow it to secure authenticity, data integrity and the reliability of its digitisation and record keeping processes and procedures. This is key to the success of the approach and fundamental to user (i.e. citizen and business) acceptance of the Belastingdienst's judgements. It is compounded by the sheer amount of data and records it must process and store – over six million citizens and one million businesses submit tax declarations each year, so the Belastingdienst systems must have massive and scalable capabilities. Also relevant is the co-ordination of the technical approach with record keeping concepts and legislation: effective communication is key to achieving this as different specifications and requirements need to be combined, and all relevant interests must be catered for. The more general issue of record inaccessibility caused by hardware and software obsolescence are not considered to be problematic as staff are aware of them and have taken steps to address them.

Organisational change is also an issue. As previously mentioned, awareness is limited to those explicitly working on digital preservation, or in relation to the business process. The concept of preserving electronic records is not embedded in the rest of the organisation, and a change in thinking is required to incite employees to recognise that electronically received tax returns are a part of the organisations records, which have historically been considered as reliant upon a paper medium. Furthering recognition of the relationship between the supporting process of document management and the core process of managing taxes throughout the rest of the organisation will help achieve this; Document Management (DM) and Information Technology (IT) staff are thus striving for document management to be given more of a central role in the organisation, rather than simply a support process.

Asset Value and Risk Exposure

The Belastingdienst creates, receives, and must preserve an increasing amount of digital records. Office documents arising from policy processes, correspondence, and human resources must be preserved as part of the organisation's administrative records. However, it is the core business records, i.e. those arising from their processing of national Dutch taxes, that are the most pertinent to this organisation and upon which this case study focuses. As identified above, the perceived value of this digital information amongst management is increased in relation to its connection with the core business processes.

Annual tax declarations take a variety of shapes and forms. The majority of returns are submitted by citizens, either on paper or in electronic format. Paper declarations are converted to digital form and processed electronically. Electronic declarations are made using an executable programme developed by the Belastingdienst; this takes the user through the declaration process and only poses questions pertinent to the individual's situation, based on the answers given to preceding questions. Completed electronic declarations can be submitted either upon an official Belastingdienst diskette (which is posted to the Belastingdienst in a pre-paid envelope) or over the Internet. The programme calculates how much the citizen is due to receive or pay as soon as the declaration has been completed (although this has to be confirmed by the Belastingdienst after processing and analysis is complete) and digital submissions are processed faster than those submitted on paper. Businesses must declare their returns with regards to BTW (VAT), Omzetbelasting (profits) and Loonbelasting (wage tax), to name but a few. Electronic returns for some of these types of tax will be compulsory from 2005 onwards. Finally, inheritance tax

declarations must also be made and preserved, although they have a less structured format compared to the well-defined structure of the citizen and business returns. These are currently available and processed on paper only.

Management of these tax returns is the organisation's primary business process and the Belastingdienst is well aware of the risks it runs should it fail to properly process and preserve any of this data for the required period of time. The first risk is legal, although not for the Belastingdienst itself but for the citizens and businesses who are legally obligated to pay taxes. If the Belastingdienst were to fail to keep the data, it is possible that people would escape their legal requirement to pay taxes. This itself would have financial repercussions as the Belastingdienst could not recuperate taxes for the government and the government would have less money with which to run the country. The reliable image of the Belastingdienst would also be at risk. Part of the reason why people have faith in and comply with the tax system is the good image they have of the Belastingdienst; if that image were to deteriorate then there is an increased risk that people would not easily comply with them and would challenge their decisions; this would again result in financial and legal consequences.

The Belastingdienst Document Management Masterplan for 2004 - 2008 incorporates a business needs and risk analysis for the successful management and preservation of digital information that clearly details these and other risks of failing to manage the data and records. The primary process of the organisation would be disrupted, the costs of document management would be disproportionate to the organisation's needs and budget, and the loss of data would severely hinder the level of service that the Belastingdienst could deliver to its clients.¹³ The Belastingdienst's motivation to preserve is therefore extremely high.

Regulatory Environment

There are five main pieces of legislation affecting preservation of information, digital or otherwise, at the Belastingdienst:

1. Archiefwet 1995 – Archives Law.
2. Algemene Wet Bestuursrecht (AWB) – General Administrative Law: concerns how the government is organised and run.
3. De Algemene Wet Rijksbelastingen (AWR) – general legislation concerning National Taxation
4. De Wet Bescherming Persoonsgegevens (WBP) – Data protection: concerns rules for the processing of personal data.
5. Wet Openbaarheid Bestuur (WOB) – Public Administration legislation

All of these pieces of legislation relate to the storage, preservation or format substitution of information and were considered when the Belastingdienst formulated its approach to digital preservation¹⁴. The retention periods for tax returns are

¹³ These risks are present regardless of whether the data is in digital or paper format.

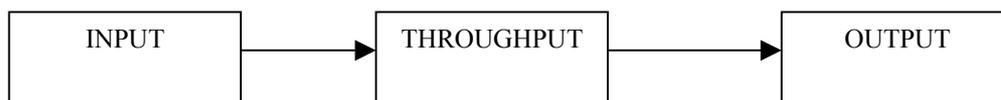
¹⁴ All are identified and discussed in the independent internal report 'Inventarisatie juridische eisen te stellen aan vervanging van originele brondocumenten met vernietiging van het origineel tbv de belastingdienst b/cfd te nieuwegein' – loosely translated as 'Inventory of legal requirements when substituting for the original source document'

specified in the Belastingdienst's Basic Selection Document (BSD)¹⁵ and are as follows:

- Most of the tax returns (i.e. non-exceptional returns from citizens and businesses) must be kept for seven years.
- Exceptional returns (e.g. those containing details of foreign earnings) must be kept for twelve years.
- Inheritance tax returns must be kept for seventy-five years.

Preservation Activity

Preservation at the Belastingdienst has been developed and implemented in a staggered process, starting with development and construction of their digital depot (i.e. the areas in which the data are stored) and ending with the design of processes for processing submitted tax returns. The process model at the Belastingdienst is a three-stage model that is functions-based. This is: a) received input; b) throughput/analysis; and c) output/communication.



The preservation focus is currently on data that citizens submit in their completed tax returns, which takes place at stage a), as these are the data and records that the Belastingdienst must preserve by law. It will be extended to incorporate data from stages b) and c) at a later date.

The Belastingdienst has drawn upon national and international research efforts to develop its approach, especially the REMANO specification¹⁶ and the Digitale Duurzaamheid programme¹⁷. The document management co-ordinator maintains contact with staff at the Dutch Archiefschool¹⁸, the National Archives¹⁹, and employees of the Ministry of the Interior²⁰ who also work on document management. However, as one of the major issues for the Belastingdienst is the sheer number of records they must deal with, it also draws upon experiences gained outside of the government sector through massive organisations such as ABN AMRO²¹ and SHELL²² that deal with records and data on a similar scale.

¹⁵ BSD – Basis Selectie Document. For details of the how the BSD is developed, see <http://www.en.nationaalarchief.nl/archiefbeheer/archiefzorg/selectie/>.

¹⁶ The REMANO specification is an adaptation in Dutch of the MoReq specification. MOREQ is available from <http://www.cornwell.co.uk/moreq>. REMANO is available from <http://europa.eu.int/ISPO/ida/export/files/nl/1492.pdf>.

¹⁷ Op cit; see also the results of the Digital Preservation Testbed at: <http://www.digitaleduurzaamheid.nl>.

¹⁸ Archives school website: <http://www.archiefschool.nl>.

¹⁹ National Archives website: <http://www.nationaalarchief.nl>.

²⁰ Ministry of the Interior website: <http://www.minbzk.nl>.

²¹ ABN AMRO is an international banking group with a strong presence in the Netherlands.

See the ABN AMRO Dutch website for more information: <http://www.abnamro.nl/nl/index.html>.

²² SHELL is a global group of energy and petroleum companies operating in over 145 countries with a strong presence in the Netherlands. See

Policies and Strategies

The 'Document Management Masterplan' is an internal paper considered by staff as representative of Belastingdienst policy towards document and records management. The DM Masterplan lays out the manner in which the Belastingdienst will achieve successful document management and covers the period 2003 – 2008. There is no separate policy regarding preservation of digital information. Archival policy is stipulated in another document, the Uitvoeringsregeling Archiefbeheer Belastingdienst of 2002, to which the Masterplan refers. However, the Masterplan recognises that further guidance is yet required regarding digital ways of working and digitising, as well as guidelines on the destruction of paper in place of digital files, and timely destruction of digital files when they are no longer required. This is specified as a necessary action point and staff are collaborating with other government facilities management groups to discuss shared policy development across different government organisations. The Office for Transfiguring Government²³, part of the Dutch e-Government strategy, is integral to this and the common effort is considered very useful as the Belastingdienst can hereby learn from the experiences of others.

Members of Belastingdienst management and a special internal task force developed the Masterplan together. Management involvement was central to organisational acceptance of the plan, which assists towards the goal of the B/CFD department to raise the profile of document management to more than just a supporting process. The Masterplan identifies a number of objectives, including further development and implementation of a next generation digital depot to maintain the produce of all three stages of the ICT model, namely input, analysis, and output communication. The exact strategy is not specified, although the plan requires that it must result in authentic, reliable, correct information that can be accessed in a timely manner. Development of this strategy is the responsibility of the IT and DM staff.

Selection

As stated in the BSD, all received returns must be preserved. Each citizen is identified via a unique social security²⁴ number that links all of a citizen's records together. The Belastingdienst is responsible for issuing these numbers and thus is in full control over them. Each regional or specialised office is responsible for collecting the returns of citizens with whose tax it deals, and if any tax returns are missing then they will be conspicuous by their absence. However, there are no procedures in place to ensure that missing data can immediately be identified. The onus is on the citizen to return his tax declaration by a specified date; if this date is missed then he is liable to penalties, and the Belastingdienst can take action when such absence of data becomes known.

Preservation

The Belastingdienst has developed its own system for managing and maintaining the returned tax declaration data, based on efficient process management and relying

<http://www.shell.com/home/Framework?siteId=nl-nl> for more information about Shell in the Netherlands.

²³ Kader Andere Overheid website: <http://www.minbzk.nl/wwwandereoverheidnl>.

²⁴ Note however that the Belastingdienst is not responsible for collecting social security contributions. This is the responsibility of another organisation, the UWV - Uitvoeringsinstituut Werknemers Verzekeringen (Social Insurance Benefits Agency). See http://www.elo.nl/elo/english/egov/online_services/index.jsp for more information on responsibilities for government service provision in the Netherlands.

upon internally developed relational databases for storage in two main databases: the DAS – Digital Archiving System, which operates at the input stage - and the ABS – Tax Declaration System, which operates at the throughput stage. Submitted returns undergo different processing procedures depending on their original format, either on paper, diskette, or via the Internet, and each type is managed by a separate office. All three processing procedures are described below and represented in the Appendix as pictograms.

All paper returns are forwarded to the office in Heerlen. On arrival at Heerlen they are scanned as TIFF's and data is retrieved using Optical and Intelligent Character Recognition (OCR/ICR). Staff are not concerned about the long-term sustainability of these files as the tax returns must only be preserved for seven years. Furthermore, a risk analysis is always carried out before implementation of new software that identifies any potential problems and this was not the case with this format and retention period. Extensive discussions took place regarding whether the scanning should be selective (i.e. just extracting the data in the completed boxes) or one-on-one (copying the whole page). One-on-one scanning was selected as citizens often complete their returns with data outside of the specified boxes and it is important that a complete copy of the whole return is created, so all of the citizen's input is recorded. This processing takes place within the DCS – Document Conversion System. The TIFF files are stored in the DAS – Digital Archiving System – completing the input stage of the procedure, and the OCR/ICR data is extracted, sent to, and stored in the ABS – Tax Declaration System. The ABS corresponds to the Throughput stage of the Belastingdienst's ICT model. The ABS fully analyses the data and checks aspects of it against prior annual returns, according to set parameters that are changed each year. The system then interprets the results and automatically processes them, sending the results on to the Output stage whereby it automatically produces outcome letters formulated as a result of the analysis and based on a standard template.

Returns received via diskette are treated similarly but instead of processing via a Document Conversion System, the data is automatically processed through the internally developed 'Easytax' system. This separates the returned data from the executable programme the citizen used to complete the return, both of which are contained on the diskette when submitted by the citizen. The program data is discarded and the returned tax data, stripped out from the executable program, is then sent onwards to the ABS, which performs the same functions as for data extracted from the paper returns and forwards to results to the Output stage.

Returns received via the Internet are not accompanied by the executable programme and consist only of the citizen-entered data, so the first stage (i.e. the input stage) consists of passing the data to ABS. The data is then processed in the ABS, in the same manner as for paper and diskette returns.

Both the ABS and the DAS are relational databases that are standard SQL compliant. The DAS has a web front end for data access; this is not required for the ABS. The DAS system stores only electronic copies of the paper returns. This home made system is in its second release, with DAS 3 scheduled for release in April 2005. DAS 3 was developed using the REMAMO specification, Archival Law, IOS 15489 as reference material, and the Belastingdienst auditors will check the way in which the system complies with the aforementioned standards and law. The ABS stores the raw tax return data from all three types of returns as raw data in the database. This data is stored on tape and also on Plasmon next-generation WORM

optical discs²⁵. Diskettes are not preserved as the data is reliably stored in the ABS; they can be disposed of once the data is extracted into the Easytax system.

Collectively, the systems described here constitute the Belastingdienst's Digital Depot, but this is a conceptual term only and not a single repository. The IT department is responsible for maintaining and developing all systems and carries out controlled migrations when required, although there is no regular plan for migration. Staff believe they will not suffer greatly from record inaccessibility caused by technical obsolescence as life cycle management is carried out by the IT department and migration is planned in time. New software undergoes an Impact Analysis to ensure that it is compatible with existing software and to identify the risks involved and the best time to migrate. Furthermore, the analysis identifies the costs of each specific migration, which is reconsidered if the costs appear too high. Performance monitoring is a continuous task of the IT-department. Note however that the movement of data between systems as occurs on a regular basis (e.g. between DAS and ABS) is not considered a migration, simply a transfer. The IT department takes steps to keep abreast of new technologies – for example, they have investigated whether the recent SMS (Short Message Service, colloquially referred to as text messaging) trend will affect their holdings – and are confident that they have sufficient expertise and knowledge available to them to continue to maintain their systems for as long as the data requires.

Metadata is dispersed across systems and concerns mostly software and processes. There is no central schema, but all actions considered worthy of recording are noted in an audit trail in accordance with the suggestions of the REMANO specification.

Access

The Belastingdienst systems are not accessible by external parties. Information stored on the mainframe is protected from inadvertent or unauthorised access and manipulation from internal parties by the IBM system RACF²⁶ (Resource Access Control Facility).

Digitised forms stored in the DAS are accessed directly as TIFF files. Data stored in ABS is simply reproduced on the screen for the user but its appearance is not identical to the manner in which the user created or submitted it as it has already been parsed out of the original interface and program. There are no plans to change these access provisions in future releases of DAS or ABS.

There are few other access issues as the data is neither publicly nor externally accessible. Data protection issues are considered in conjunction with the Dutch Data Protection Authority and the Belastingdienst accords with the De Wet Bescherming Persoonsgegevens (WBP) – Data Protection Act – identified above. This is particularly pertinent when checking the tax returns of VIP's and Belastingdienst staff, which are processed and assessed separately for reasons of security, confidentiality, and privacy.

²⁵ For further information on PLASMON next generation WORM optical discs, see <http://www.plasmon.com/news/boa.html>.

²⁶ For more information on RACF, visit: <http://www-1.ibm.com/servers/eserver/zseries/zos/racf/>.

Compliance Monitoring

Dutch tax and archival legislation, which is ambiguous with regards to digitised records, requires that the Belastingdienst maintain authentic, reliable, correct records of submitted information and can provide access to it in a timely manner. To ensure that this is the case, the procedure established for digital processing and storage of the paper returns in DAS 3 will be subject to a strict audit procedure that covers all actions from receipt of the paper returns to storage in DAS 3. The Masterplan stipulates that this requirement for authentic, correct and reliable data that can be accessed in a timely manner should also apply to all data and records, so a similar parallel process is being established for the other data and records. All such processes are to be monitored and regularly audited by the Ministry of Finance Audit service.

The audit will examine the procedure by which the data is treated at the Belastingdienst and the Service intends to further develop the audit process to result in certification of the data, especially that stored in DAS 3. This certification is considered vital to minimise the risks identified earlier in this paper and to ensure that the Belastingdienst can prove it is meeting its legal requirements in the absence of any specified legislation on digital archiving or conversion of data originally submitted on paper.

The audit service will monitor four main aspects of the data processing process: the receipt of the data and the substitution processes by which the paper record is converted into a TIFF file; transport of the data between systems; arrival of the data and the manner in which it is stored (especially with regards to DAS 3), and; the audit trail itself. There are three levels of control that the Service expects to find in the ICT processes or objects it audits:

- General IT controls - this requires auditing the organisation of receipt, operational, change, incidents, problems, backups, and recovery and contingency processes;
- Application controls - the types of controls that are developed inside the application are monitored here, for example, the use of hash keys;
- User controls - the kind of controls that exist within the organisation that can be monitored, such as internal controls and management reports.

This audit process is in development and draws upon the audit considerations of several standards, including MoReq for application controls, ISO 15489²⁷ for archive controls, the Dutch translation of the British BS7799 code of practice for Information Security management²⁸, ITIL best practices model for an ICT organisation²⁹, and monthly management information from the Belastingdienst for user and general controls. It will be implemented in conjunction with the release of DAS 3 in April 2005.

²⁷ Further information on the ISO 15489 standard is available from the ISO website: <http://www.iso.org/iso/en/ISOOnline.openerpage>.

²⁸ For more information on BS7799, see <http://www.thewindow.to/bs7799/>. This is very similar to the ISO Standard 17799 Information technology - Code of practice for information security management, available from ISO. See <http://www.iso.org/iso/en/prods-services/popstds/informationsecurity.html>.

²⁹ For more information on ITIL, see <http://www.itil.org.uk/>.

Digital Preservation Costs

Although ERPANET was privy to evidence that costing details have been carefully and explicitly worked out and that the hard and soft benefits of digital preservation are well understood³⁰, the Belastingdienst was unable to allow publication of such information.

Future Outlook

The Belastingdienst are confident that they are well on the way to successful management and preservation of their digital resources, especially as citizens tax returns need only be preserved for seven years or twelve years in exceptional circumstances. The IT and DM sections believe that their current approach is sufficient but do not intend to rest on their laurels and as discussed earlier, have already developed a new version of DAS (known as DAS 3), with increased storage capabilities and clearer compliance to the determined legal environment, planned for completion by April 2005.

Interviewees were of the opinions that more money would be available for ongoing document management in the future, as indicated by the Belastingdienst's intention to turn the Masterplan into a strategic programme with its own funding. When more funds are available, the main objective will be to speed up the process of implementing electronic document management across the whole organisation. Money is not considered to be a great problem as the Belastingdienst must continue to provide the service it was established to provide, in order to ensure the government receives the high financial returns the tax service was established to collect; thus, keeping the business processes going is considered more important than the amount of money it will take. It is not a cost driven organisation, although obviously the costs must be justified.

Staff are keen to promote the benefits of the DAS to other government organisations and believe that the DAS may be suitable for other organisations that produce records with retention periods of between seven to twelve years. They see this as an opportunity to increase revenue for the Belastingdienst by making it more widely available, which would simultaneously decrease the initial investment that other government bodies must make in new IT projects. It also holds a great deal of data that other organisations could make use of, which offers the potential to contribute to the streamlining of personal data³¹ within Dutch government services. The Belastingdienst considers itself to be quite advanced compared to many other online services and, with forty years of experience in their IT department, it has learned many lessons that it is willing to share with others.

The Belastingdienst also wishes to learn from other national tax bodies and to see how they are coping with these problems. Staff are keen to see more digital archiving information become available, specifically on archiving databases: whether emulation is necessary and how the data can be restored and accessed. Such information would be useful to help them further organise the throughput mechanism described earlier. Preserving context is another issue on which they wish to see further information, for example, in preserving the links that take data through the input – throughput – output process. Finally, they would like to see more information available on dealing with the great mass of data they hold, as there are few other

³⁰ Contained in the Belastingdienst Masterplan, op cit.

³¹ Projects on streamlining key personal data are already being funded in the Netherlands, see: <http://www.stroomlijningbasisgegevens.nl/index/index.html>.

organisations that they are comparable with in this respect. The recent ERPANET study on the KNMI³² will help address this.

³² Available from <http://www.erpanet.org>.

Chapter 7: Conclusions

The Belastingdienst has made a promising start in preserving digital information, whereby preservation is considered part of the record lifecycle and part of regular document management activities. It has established individual processes for each type of return according to the requirements of the submitted data type, as well as the more general requirements of the Belastingdienst itself, for example, the medium term retention period and the rudimentary legislative frameworks. The approach is solid and although it has strong support in the upper levels of the organisation, it has been developed from the bottom up; this is no doubt related to the absence of explicit legislation on the archiving of tax declaration data in digital format.

The absence of legislation is however a problem, as the Belastingdienst must expend extra time and resources to research the legal suitability of their approach. By preserving the scans of original paper documents, the Belastingdienst has protected itself against major criticisms until the legal position regarding digitisation and preservation of data in digital form is clarified. However, concerns about public image mean that they are reluctant to share specific details of their approach with a wider audience, especially regarding disposition of diskettes, for the lack of legal sanction may lead citizens to question their approach and withhold legally required taxes on the grounds that the Belastingdienst made its judgement based on processed, not original, data. The detailed and rigorous auditing procedure it has established should safeguard it from such claims, but only after what may be long, costly, and very public hearings that could affect its image even if the hearing found their procedures to be effective. People remember accusations far longer than they remember vindication, and the Belastingdienst do well to push forward with efforts to legitimise their approach in a legal framework.

Despite this, many aspects of the Belastingdienst approach are particularly noteworthy. The rigorous auditing procedure and the emphases on authenticity, integrity and reliability are near unique in the range of case studies ERPANET has so far conducted. In a similar vein, a great deal of attention has been paid to the processes the data undergoes at the Belastingdienst, and although this is likely a result of the tax profession, the strong history of audits in financial institutions, and the very serious financial repercussions the organisation may incur should it fail to be accountable for its actions, there is no reason why digital repositories in other professions should not also impose similar audit and certification procedures. Such measures increase public confidence in the reliability of the material being stored and ERPANET anticipates that it is only a matter of time before demand for such a service increases, especially amongst cultural heritage sectors that must preserve their material ad infinitum. The longer the retention period, the more likely it is that the data format or storage environment will be changed or migrated, and thus the higher the requirement for confirmation that the data is still reliable.

The presence and visibility of backing from senior management is also useful, and the detailed cost analyses that have been carried out have no doubt helped influence this. As the Belastingdienst's digital data has a core role in the primary working business processes of the organisation, its value is becoming increasingly recognised in the upper echelons of the organisation; it is only a matter of time and perseverance before such recognition permeates the mass of civil servants who deal with and use the information on a day-to-day basis. Embedding digital preservation into the organisation's policy framework would assist in this. Although it is not strictly necessary that digital preservation issues are understood across the entire organisation, understanding the processes by which the data is reliably secured

increases user confidence and if employees are knowledgeable and confident about the reliability of the data, then citizens and businesses are more likely to develop similar attitudes.

Staggered implementation of the approach also has its benefits. Lessons learned in this implementation can later be applied to other types of declarations, such as those for Businesses (which have a similar retention period), but most importantly for inheritance taxes, which have a much longer retention period of seventy-five years. By the time this happens, the audit and certification process will be well established and hopefully expanded to cover more explicitly data originally submitted in digital form (the current certification refers only to digitised data). As mentioned above, the longer the retention period, the more likely it is that the environment in which the data is stored will be altered at some point, thus the higher the requirement for confirmation that the data is still reliable. Although the Belastingdienst prefers to rely on the suitability results of their impact analyses rather than carry out post-migration data evaluations, it may find that they become necessary as part of the audit and certification framework and would benefit from building such measures in to their migration pathways in advance of any external requirements and the forthcoming migration to DAS 3. Such steps would also provide further assurances that the data is reliable, should doubt ever be cast upon it.

In all, the Belastingdienst provides an interesting and detailed insight into procedural developments designed to ensure the maintenance and preservation of authentic and reliable records. Even though the required retention period is only medium-term, many of its measures are further applicable in the longer-term environment and outside of the professional field for which the applications were originally developed. If the organisation continues to develop in the same promising vein it is so far following, then they stand every chance of preserving their records and data successfully.

References

Websites:

Archiefschool website: <http://www.archiefschool.nl>.

Belastingdienst website: <http://www.belastingdienst.nl>.

BS7799 code of practice for Information Security management:

<http://www.thewindow.to/bs7799/>.

Digitale Duurzaamheid website: <http://www.digitaleduurzaamheid.nl>.

Dutch National E-Government Knowledge Centre: <http://www.elo.nl>.

E-europe 2005 results:

http://europa.eu.int/information_society/eeurope/2005/all_about/benchmarking/index_en.htm.

ISO website: <http://www.iso.org/iso/en/ISOOnline.openpage>.

ITIL best practices model for ICT organisations: <http://www.itil.org.uk/>.

Kader Andere Overheid website: <http://www.minbzk.nl/wwwandereoverheidnl>.

Ministry of the Interior: <http://www.minbzk.nl>.

MoReq specification: <http://www.cornwell.co.uk/moreq>.

National Archives of the Netherlands website: <http://www.nationaalarchief.nl>.

REMANO specification: <http://europa.eu.int/ISPO/ida/export/files/nl/1492.pdf>.

Resource Access Control Facility (RACF): <http://www-1.ibm.com/servers/eserver/zseries/zos/racf/>.

Stichting ICTU website: <http://www.ictu.nl>.

Stichting GO: <http://www.sod-opleidingen.nl>.

Streamlining Key Data project:

<http://www.stroomlijningbasisgegevens.nl/index/index.htm>.

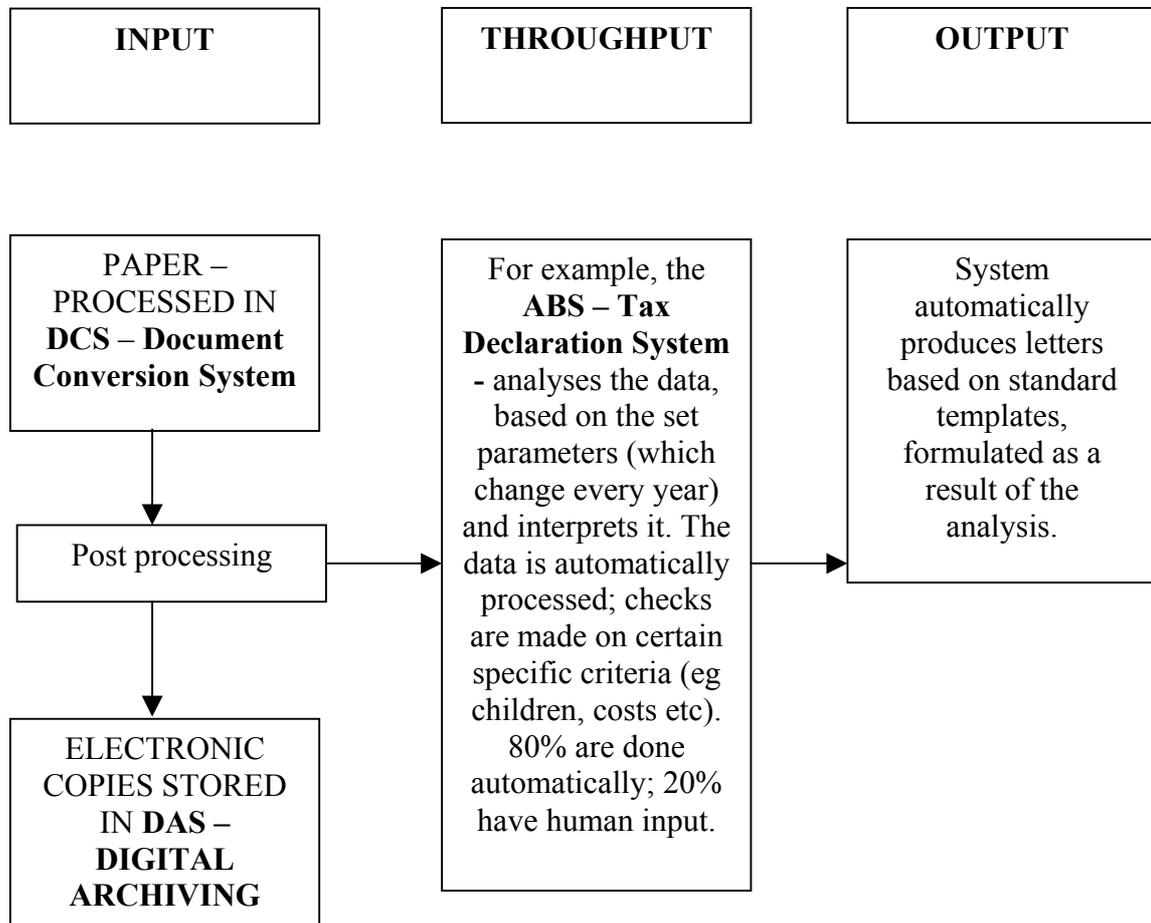
Internal Belastingdienst Documents:

Inventarisatie juridische eisen te stellen aan vervanging van originele brondocumenten met vernietiging van het origineel tbv de belastingdienst b/cfd te nieuwegein.

Masterplan Documenthuishouding.

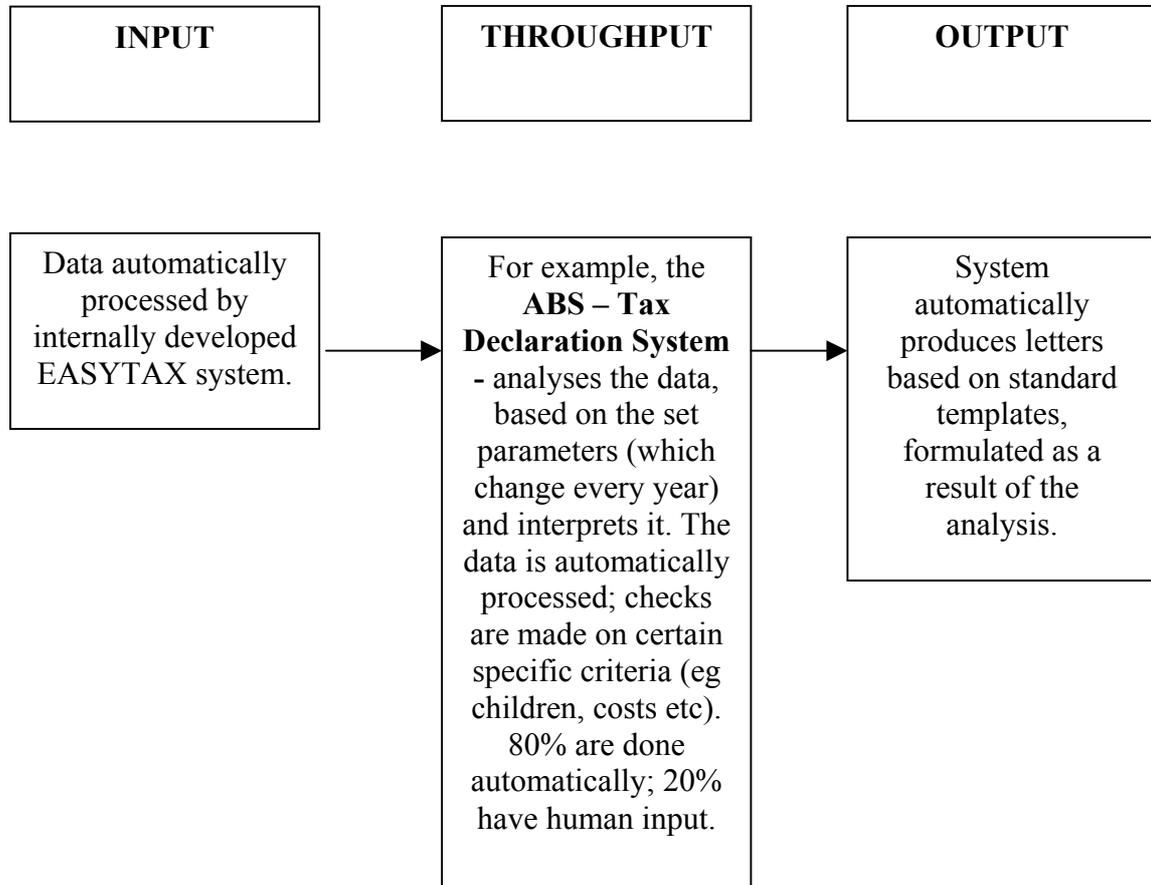
Appendix 1

Process for paper returns:



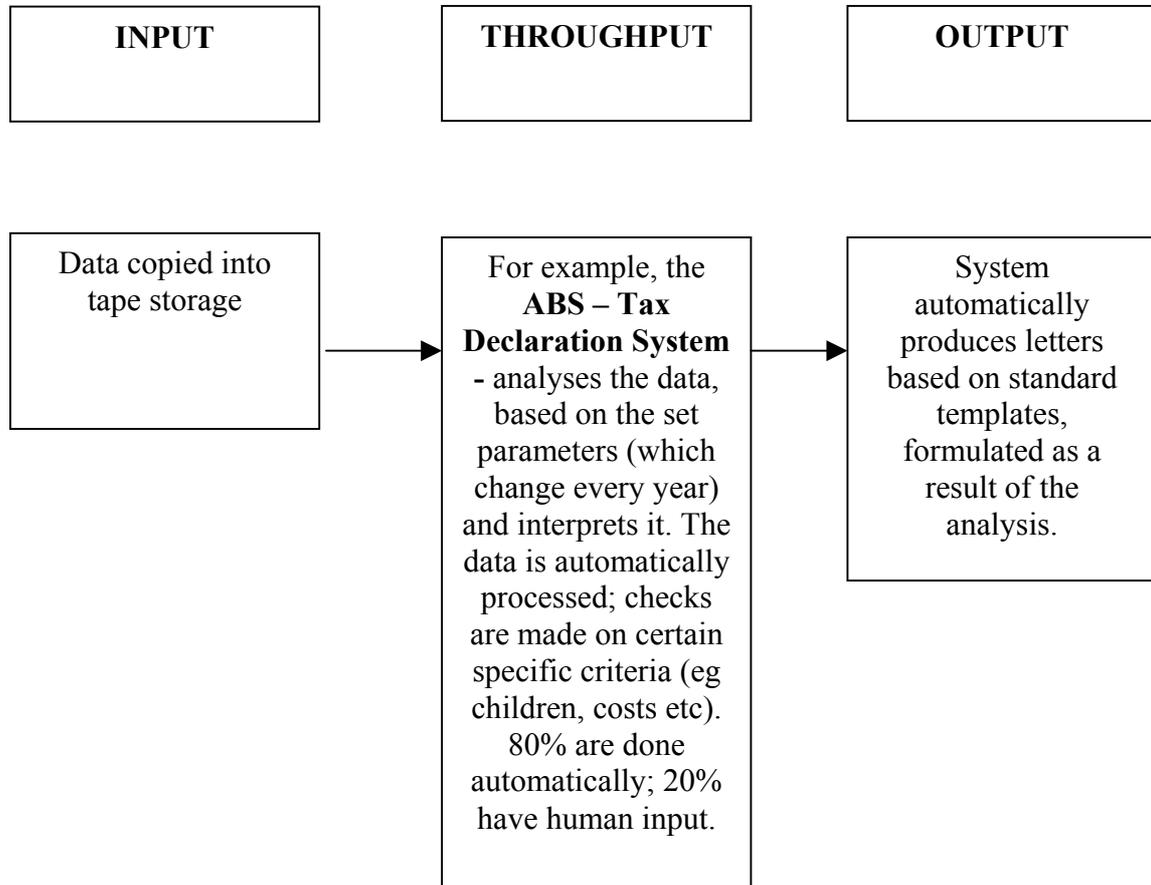
Appendix 2

Process for electronic returns received via diskette as part of an executable program.



Appendix 3

Process for electronic returns received via the Internet as pure data



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