

**DEPARTMENT OF ARTS,
HERITAGE AND THE
GAELTACHT**

**COST BENEFIT ANALYSIS
OF THE NATIONAL
ARCHIVES WAREHOUSE
DEVELOPMENT PLAN**



6 December 2013

Abbreviations

CBA	Cost Benefit Analysis
CEEU	Central Economic Evaluation Unit, Department of Finance
CRC	Commercial Record Company
DAHG	Department of Arts, Heritage and the Gaeltacht
FOI	Freedom of Information
NAI	National Archives of Ireland
NPV	Net Present Value
IRR	Internal Rate of Return
OPW	Office of Public Works
RTR	Retrieval, Transport and Return of archives from external or internal store to reader.
TDR	Test Discount Rate
WDP	Warehouse Development Plan

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SUMMARY

1. The National Archive was set up in 1986 to preserve Government records and make them available to the public.
2. The storage space available to the NA at Bishop Street and in the Four Courts can accommodate 214,000 standard boxes of archives and both facilities are now full. Future acquisition of archives, including the annual releases under the 'Thirty Years' rule, will have to go to external commercial storage.
3. However, the Government is considering the refurbishment of a large warehouse at the rear of Bishop Street. If developed as an archive, this will accommodate over 300,000 boxes of archives. The cost of the Warehouse Development Plan (WDP) is estimated at €17.7 million and will be developed over eight years.
4. The development would obviate the need for the NA to use external storage in the future. The consultants have therefore evaluated the viability of this investment in terms of the external storage costs that would thereby be avoided.
5. Their estimates suggest that rental costs avoided by building the WDP would be about €0.9 million per annum at peak and for most of the life of the project.
6. In addition the consultants, using economic Cost Benefit Analysis (CBA) methodology have estimated other benefits to visitors to the NA. These are valued at about €468,000 per annum at peak.
7. Because the new facility will greatly expand the size of the accessible archive, there will be increased operational costs. Some of these are offset by the fact that increased use of external storage would also generate increased costs in the NA over and above storage charges. The net increase in costs is estimated at about €106,000.
8. An important adjustment to the nominal figures is necessary to account for the 'Excess Cost of Exchequer Funds'. This is a kind of premium which CBA methodology attaches to Government spending to account for the burden which taxation used to fund Government spending, imposes on the economy. This premium is estimated to be 30%.

9. Normally, this factor weighs as an additional cost. However, as this project will involve substantial savings to the Government over most of its life, the factor is positive (i.e. a negative cost) and amounts to €232,000 per annum at peak.
10. In the early years, when the WDP is being constructed, there are strong negative economic and financial flows mainly associated with the cost of construction. But thereafter there are estimated to be net economic benefits.
11. When the net costs and benefits of the project are discounted by the Government's rate of return ('Test Discount Rate') which is 5%, the result is positive. The project will earn a return of 6.8% and the net discounted benefits (Net Present Value) of the project will be €4.5 million. Another way to put it is that the discounted annual net benefits will exceed the discounted capital costs in the ratio of 138 to 100
12. In some circumstances the viability of the project could be threatened. The major ones are if storage costs proved less than what is forecast here, or if capital costs proved more. However, negative deviations from the figures used in this analysis are either very unlikely or would have to be very large to threaten the viability of the project.
13. The analysis presented in this report uses CBA methodology. There are a large number of things which CBA cannot measure because they are inherently unquantifiable or because the data is absent. One important such benefit is that commercial storage cannot deliver the same standards of security as a purpose built archive of the sort proposed.
14. Likewise, there are unquantifiable benefits to the quality of the service delivered by an archive to its visitors which has its archives on one campus.

Digitisation

15. Digitisation was considered as a process which in principle could reduce the volume of files now in Departmental premises and in external storage. However, digitisation can only be justified as a means of preserving vulnerable materials or widening access to archives via the internet. There are virtually no circumstances in which digitisation could be justified by savings in storage costs.

I INTRODUCTION

Terms of Reference

I.1 We were asked by the Department of Arts Heritage and the Gaeltacht (DAHG) to carry out an economic cost benefit analysis of a proposed refurbishment (the Warehouse Development Plan - WDP) at the National Archives of Ireland (NA) in Bishop Street, Dublin 6.¹ The project is estimated to cost €17.7 million and to be implemented on a phased basis over eight years with construction starting in 2015. The project involves the creation of a modern archive facility on two stories inside a warehouse at the rear of the NA's premises which is now used merely to store uncatalogued archives. The refurbished facility is urgently required because the archival space available to the NA is completely full and the warehouse has no shelving or temperature and humidity controls. The WDP will increase the archival capacity of the NA at Bishop Street by about 275% and the NA's overall capacity by 160%, counting the NA's archive in the Four Courts. This is therefore a substantial expansion and is intended to meet the NA's needs for some years to come.

Cost Benefit Analysis (CBA)

I.2 Cost benefit analyses (CBAs) are increasingly required for public capital projects in order to help ensure the optimum use of public funds. As defined by the Central Economic Evaluation Unit (CEEU) of the Department of Finance, CBA embraces the costs and benefits to the wider economy and society of a project.² This is distinct from cost benefit analyses associated with private sector investments which are limited to financial benefits accruing directly to and costs incurred directly by the private organisation undertaking the investment.

Methodology

I.3 The methodology adopted by the consultants is to identify a plausible counterfactual scenario which would develop in the absence of the WDP. The essential element of this is increased use of external commercial storage and the main benefit of the WDP is the avoidance of rentals and related costs. Other benefits include the imputed consumer value of increased use of the NA's archives by visitors to the premises as a result of the expansion of the accessible archive, and tourist expenditure associated with increased foreign visitors. On the cost side, in addition to the capital cost of the refurbishment, there will be increases in staff, energy consumption and maintenance as a result of the project. But there may be offsets to these since the use of external commercial storage also generates manpower demands in the NA and the warehouse in its present condition is costly to heat, light and maintain. CBA also involves some adjustments to costs and benefits to account for taxes, and to the nominal value of payroll costs and exchequer funds.

Acknowledgement

I.4 The consultants would like to acknowledge the assistance they received from personnel of the NA, the Office of Public Works (OPW) and other organisations which they consulted. A list of those interviewed or met with is appended.

¹ In the text 'WDP' is used to refer to the project to refurbish the warehouse and to the refurbished warehouse. Context should make it clear which is intended.

² Central Expenditure Evaluation Unit. *Guide to economic appraisal: Carrying out a cost benefit analysis.*

II BACKGROUND

The 1986 National Archives Act

II.1 The National Archives were set up under the 1986 National Archives Act. The primary tasks of the NA are to preserve public archives and to make them accessible to the population at large. On its establishment the NA took over two large archives, the State Papers and the Public Record Office, which had been set up under earlier legislation. Government Departments and a number of other public entities including the courts, tribunals, commissions, and agencies within the public sector (the 'scheduled bodies') are obliged to preserve their records and to pass them in good order to the NA. The NA is obliged to take them for safekeeping and public access. Normally the transfer takes place after thirty years, the time after which public archives have to be open to the public.

II.2 The NA also has powers to accept or even buy private (e.g. those of religious organisations, business enterprises and important individuals) archives if these are deemed historically significant.

History of Accommodation

II.3 The NA's storage capacity in relation to the potential demand from archives coming within the scope of the Act has been the dominant preoccupation of NA management for many years.

II.4 Storage of archives is very demanding in terms of building design. Most obviously the building has to be large enough to accommodate the volume of material involved and provide space for unloading large consignments, unpacking them, and for circulation around the shelving. However, the building is no mere warehouse: it also has to have high standards of fire protection, physical security and ambient control.

II.5 After its establishment the NA moved into Bishop Street where it occupies a five story former factory building: the 'Front Building'. This building houses 124,000 boxes of archives on the five floors.³ In addition, the NA has 90,000 boxes in space which it occupies in the Four Courts. It has invested €400,000 on refurbishment in the Four Courts in the last four years with another €100,000 planned. Additional works have been carried out by the OPW.

II.6 Additionally, about 114,000 boxes of archives have been placed in the ware house at the rear of the Front Building. This is in a conventional industrial structure of 28,000 square feet and about 30 feet high. Most of the material here consists of uncatalogued/unprocessed archives that cannot be made available or stored efficiently and to accepted standards and is virtually inaccessible pending development of proper facilities.

II.7 Over the years, failure to fit out the warehouse as an archive has led to increasing pressure on the use of the Front Building. The resort has had to be made to a number of expedients including use of unsuitable areas, installation of mobile shelves to economise on floor space and the use of external storage by a commercial record company (CRC). All of these expedients are expensive, unsustainable in the long run, and not consistent with the statutory duties of the NA since the material in CRCs is not always safe or accessible. The position has now been reached that after 2013 no further archives can be accepted at either of the NA's locations in Bishop Street and the Four Courts, and the releases for 2014 and presumably thereafter will have to go to a CRC.

Proposed Project

³ A standard box is 150 mm x 410 mm x 280 mm and contains between 700 and 1,000 pages.

II.8 Several plans have been prepared since the 1980s to convert the warehouse into a modern archive capable of handling the NA's total needs and providing capacity for years to come. These included very elaborate and expensive projects to add stories to the warehouse on top and excavate below. All of these plans have been abandoned due to interruption of financing, policy changes, change of concept and so on. Thus a considerable amount of professional time has been consumed with no result. The current WDP proposal is simply that the warehouse will be refurbished to a high standard and a second floor inserted. The proposal is to spread the €17.7 million construction over eight years in such manner that the building can be brought into use on a phased basis while minimising the draw-down of funds in any one year. It is assumed here that work will start in 2014, that the contractor will be on site in 2015 and that 40% of the building can be occupied in 2017, 90% in 2019 and the remainder on completion in 2021. The building will then have the capacity to accommodate 340,000 standard boxes.

Phase	2014	2015	2016	2017	2018	2019	2020	2021	Total
1	0.50	5.50	1.50	0.15					7.65
2	0.00		0.40	3.30	3.35	0.15			7.20
3	0.00				0.10	1.45	1.25	0.05	2.85
Total	0.50	5.50	1.90	3.45	3.45	1.60	1.25	0.05	17.70
Capacity ¹				136	136	306	306	340 ²	
¹ In 000 standard archive boxes. ² The practical limit is assumed to be about 306,000 boxes (90%).									

III DEMAND AND SUPPLY FOR ARCHIVAL SPACE

Statutory Obligations: The Principles

III.1 Under the 1986 Act, as noted above, Government Departments and scheduled bodies are required to preserve their files and after thirty years to transfer them to the NA which is obliged to preserve them and make them available to the public.

III. 2 However, there are a number of exceptions to this seemingly simple 'thirty years rule'.

- In 1992, by Statutory Order, and in recognition of the lack of space, the provision in the Act relating to transfers from the scheduled bodies to the NA was suspended, though the bodies are required to maintain their archives.
- In practice, not all Departments are equally diligent in managing their archives and the NA is insufficiently staffed to advise and assist them. While some Departments are keen to hand on their archives others, for administrative or other reasons, prefer to hold on to them.
- In any case, increasingly in recent years, the NA is unable to accept some material which it is statutorily required to do because of the absence of space and despite the desire of some Departments to move it on.
- On the other hand, the NA sometimes feels obliged to take records from whatever originating body if they are endangered, perhaps as a result of the closure of an organisation, a change of premises or simply inadequate storage by the entity in question.

Forecasting Demand for Archival Storage

III.3 The result of this is that while in principle it is clear that files should transfer to the NA after, at least, thirty years, in practice the transfer process is subject to a lot of uncertainties arising from the factors recited above. Nevertheless some attempt has to be made to forecast the likely level of demand over the medium term. The following seem to be the best estimates that can be made:

- The NA estimates that 5,000 boxes per annum is the current rate of accession from Departments with which it has worked to produce archives in good order and which are relatively important (e.g. Taoiseach, Foreign Affairs, etc.) and thus likely to be in high demand by the public.
- To this should be added an annual demand of an uncertain number of boxes arising from emergency and unforeseen situations of the sort mentioned above. On the basis of the NA's experience of the last three years, the consultants think that this element can be projected at the rate 2,000 boxes per annum on average.
- The U.K. Government has started moving to a twenty year rule which will be implemented over a ten year period. Given the close relations between the two countries and the parallels in public administration, it seems very likely that Ireland will do the same. If so it would mean that for the years of the change-over, twice the annual volume of archives will have to be accepted. For the purposes of this analysis, the consultants assume that this process will start in 2015 with three years' intake. This will enable Ireland to 'catch up' with the British phasing. Thereafter annual releases will be an additional 5,000 boxes until 2023 when the change over will be complete and the intake will drop to 5,000 (plus 2,000 'emergency' boxes).
- There are two contrary influences on the creation of physical archives in the future which it is impossible to assess. On the one hand there is tendency for the volume of files per Department to increase. No doubt this due to a range of factors including the on-going

extension of government responsibilities, increased availability of PCs, thus making written communications easier, and perhaps some change in administrative practice due to, for example, Freedom of Information (FOI) legislation.

- The contrary influence is digitisation. Some Government functions are digitised so that there are now no hard copies of files. The Companies Registration Office and the District Court files are examples of this. Clearly this saves space. But it should be noted that where there is a hard copy, it has to be preserved even if there is also a digital copy. Sometimes, documents which function in digital form, like emails, are turned into hard copies, perhaps, again because of FOI legislation.

Table III.1: National Archives Holdings of Department Archives		
	Records of 1982 Transferred to the NA by 2012 Under 30 Years Rule	Latest year(s) for which the NA has archives
Taoiseach	All	1982
Agriculture	Some	1980s
Arts	None	1962
Communications	None	1970s
Community, Rural and Gaeltacht	Some	1989
Defence	None Military Archives have been approved as a 'Place of Deposit' under the Act	
Education and Skills	Some	1993
Jobs, Enterprise and Innovation	None	1976
Environment, Community and Local Government	None	1970s
Finance	None	1976
Foreign Affairs	All	1982
Health and Children	Some	1980s
Justice	Some	1982
Social Protection	None	1980
Transport	None	1970s
Secretary to the President	All	1982
Attorney General	All	1982
Comptroller and Auditor General	None	1962

III.4 Without any means of evaluating the last two items, the consultants project annual demand to be between 7,000 and 12,000 boxes per annum in accordance with the first three bullet points above (and 17,000 in 2015, the first year of transition). Even if the size of annual releases should decline in the long run due to digitisation, there will still be a large backlog of material due to the factors mentioned in paragraph III.2.

III.5 As of now there are elements of back log demand for archival space of which the following are the most pressing.

- 114,000 boxes which are now stored in the Bishop Street warehouse, inaccessible and in unsatisfactory conditions.

- 1,800 boxes in remote and expensive CRC storage which should be brought into Bishop Street
- The NA is anxious to secure maps in the possession of the Ordnance Survey which are not in sustainable storage and which have particular value in that they date back to the 1880s. There are other examples of the same sort but the maps are a particular priority because of their value and their vulnerability. The maps will not be stored in standard boxes but the equivalent space would otherwise store about 25,000 boxes.

Archival Space: The Supply

III.6 As noted in the table the present supply of space consists in the Front Building (124,000

Table III. 2: Supply and Demand for Archival Space (000s Boxes)		
	Location	Boxes
1	Bishop Street Front Building	124
2	Four Courts	90
3=1+2	Total	214
'Back Long' Demand		
4	CRC	2
5	Ordnance Survey	25
6	Bishop Street Warehouse	114
7=4+5+6	Total back log	141
8	Bishop Street Warehouse (refurbished)	306
9=8-7	Available for annual intake	165

boxes) and the Four Courts (90,000 boxes) both of which are now full. As a result, 2,000 boxes are now in a CRC and 114,000 boxes are stored (but not archived) in the warehouse. The Ordnance Survey files are still with the Ordnance Survey.

The Warehouse Development Plan and the Alternative.

III.7 A crucial element in the analysis which follows is determining the use that will be made of the warehouse after the WDP and what will happen if the WDP does not go ahead - the counterfactual.

With the WDP: The Warehouse Development Plan Proceeds

III.7 If the WDP goes ahead the most obvious first step would be to catalogue and shelve the 114,000 boxes now sitting largely inaccessible in the warehouse. It would also make sense to bring into the new space the 2,000 boxes now in external storage. It is entirely possible that the unarchived material referred to in paragraph III. 2 would quickly fill up the rest of the refurbished warehouse. However, the presumption is that, other than emergencies, when valuable archives are threatened with loss or damage, the priority should be for the ingestion of the annual releases. The maps in the Ordnance Survey are one recognisable emergency and, as noted above, constitute the equivalent of 25,000 boxes. Allowing for these three blocks of archives, annual releases and emergencies in 2014-20 when the project is under way means that about 70% of the available space in the WDP will be accounted for when the WDP is fully operational in 2021.

III.8 Thereafter, given that the scenario assumes that the remaining spaces will be filled by the annual releases (see paragraph III.4 above). This means a relatively slow build-up of archives in the warehouse, reaching effective capacity in 2030.

III.9 An alternative scenario, should the WDP go ahead, is that the NA will be under pressure to accept elements of the back log demand from Government Departments and the scheduled bodies, and that as a consequence the warehouse be completely filled within a few years. This possibility is not modelled here. But it would probably give a larger economic return to the project than the option of the slow build-up of the annual releases which is modelled.

III.10 The reason for this conclusion is that the archival back log is now either in Department premises or in external commercial storage. The analysis which follows shows that external commercial storage is more expensive than storage in the refurbished warehouse. Storage in city centre real estate in Government Departments is more expensive again. Also, if the back log demand filled the warehouse in a few years it would bring forward the benefit of the project compared with the option explored here when it will only be in full use about eight years after completion.

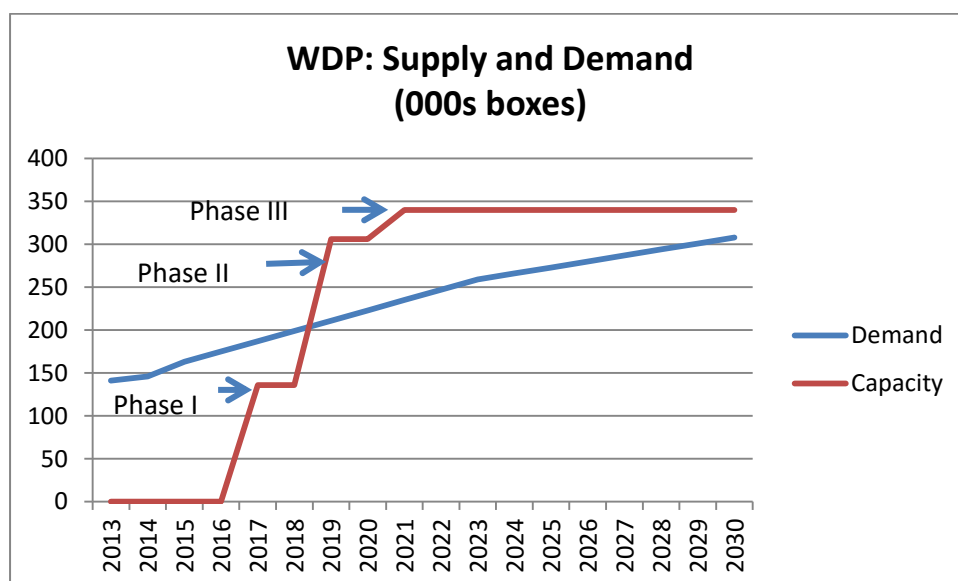
III.11 However, to repeat, the rationale for the slow build up scenario chosen is that the annual releases are of higher archival value – since they relate to the most recent years and are of topical as well as historical interest - than what is now contained in the back log among Departments and scheduled bodies.

Without the WDP: Reliance on External Commercial Record Companies

III.12 In the absence of the WDP, any further archives will have to be stored off site with a commercial record company (CRC). As noted in Table III.2, the WDP, after accounting for the 114,000 boxes already in the warehouse, the 2,000 with a CRC and the emergency 25,000, will be able to accommodate 165,000 additional boxes from the annual demand (of which 36,000 from 2014-2016 will already be in the WDP when the first phase is ready in 2017).

III.13 The evaluation therefore is based on a comparison between the capital cost of the WDP which will have the capacity to accommodate 306,000 boxes and the storage of 165,000 boxes with CRCs. The implicit assumption is that in the absence of the WDP, the files in the warehouse and the Ordnance Survey would stay where they are indefinitely. It follows therefore that this comparison is asymmetric to the disadvantage of the project: in effect the benefit of making available the archives in the warehouse and the Ordnance Survey are counted for almost nil.

III.14 The graph below illustrates the resulting relationship between supply and demand. The facility is underused between 2017 and 2030 after which, in the absence of any further capacity, the supply demand situation reverts to its current state of affairs and use of CRCs will resume.



IV BENEFITS

Storage and Retrieval

IV.1 The main point of the above discussion on alternative scenarios is that the principal benefit accruing to the development of the warehouse is the cost of storage with external CRCs which will thereby be avoided.

IV.2 The cost of storage with a CRC involves an annual rental charge, and a charge for removal, transport and return (RTR) of a box, when requested by the customer. The overall cost per box thus depends in part on the percentage of boxes requested. The rate of request for the 1,800 boxes which the NA has with its CRC at present is about 13%. Another indication is given by the annual number of 'productions', i.e. requests for files, which the NA records each year relative to its accessible archive. In recent years productions have been running at about 25,000 per annum and as there are about 215,000 boxes in Bishop Street and The Four Courts, the rate works out at something about 12%. But 'productions' means files and two or more files requested at any one time may involve just one box. Conservatively, a request rate of 10% would seem to be a reasonable figure to adopt for calculating RTR.

	€	€ Total for 100,000 boxes
Storage charge per annum	5.2	520,000
RTR % per annum	10.0	
Handling charge per box ¹	1.3	13,000
Transport charge per delivery ²	9.0	2,250
Total		535,250
Average per box per annum	5.35	
¹ 100,000 boxes x 10% x €1.30		
² €9 per delivery x 250 days per annum x 4 providers.		

IV.3 The storage cost parameters are shown in the table. When the number of boxes becomes large, and accordingly the number of requests per day moves upwards, movements take place on a daily basis. Unless the number of requests exceeds about 100 per day, or 25,000 per annum (the equivalent of 250,000 boxes in external storage at the assumed rate of RTRs), the transport charge simply becomes a daily charge of €9. Even if

there were a number of CRCs, each charging for daily transport, the transport charge becomes small in the aggregate. The average cost of storage and RTR per annum therefore works out at about €5.35 per box per annum.

IV.4 Therefore, in the absence of the WDP, the cost of storing the 165,000 boxes which would otherwise be in Bishop Street, works out at around €894,000 per annum. This is the largest and most tangible benefit of the refurbishment of the warehouse.

Consumer Value

IV.5 The value of goods and services supplied by commercial organisations is normally measured by revenues in the market place. Entrance to the NA is free. But nonetheless there is a benefit which must be assessed and included in CBA. A number of methodologies have been used to attach an economic value to visits to cultural sites for which no charge is made.⁴ Some of these are rather

⁴ CEEU op cit; Jura Consultants, *Bolton's Museum, Library and Archive Services: An Economic Evaluation*, (Bolton Metropolitan Borough, Edinburgh, 2005); Dave O'Brien, *Measuring the value of culture: a report to the Department for Culture Media and Sport* (Department of Culture Media and Sport, London, 2010);

complex ('contingent valuation', 'revealed preference'). In the small amount of time and information available for this CBA the methodology adopted here is to look at the nearest available comparator to a general admission charge to the NA. This would seem to be the €20 charge which is made for searching the archive of the Registrar General. The value of a visit to the NA is therefore imputed to be €20 per visitor.

IV.6 The question is how many extra visitors will come to the NA as a result of the WDP? Experience suggests that the number of visitors is in some way related to the size of the archive. At the moment that is about 15,000 visitors per annum for an archive of 214,000 boxes or a rate of 7%. The advantage of the WDP is that it will make a larger number of boxes available than

	Now	With WDP	Without WDP
CRCs			165
Four Courts	90	90	90
Bishop Street	124	430	124
Total	214	520	379

under the alternative and that all of the extra boxes will be in Bishop Street. Indeed with the WDP the proportion of the archive on site will rise from 58% now to 83%. Applying the 7% rate to the expansion of the archive with the WDP over and above what would happen without the WDP, suggests an increase of about 10,000 visitors. Allowing something extra for the fact that with the WDP the archives will be mostly on site might be worth another 5,000 visitors at peak making a total of an extra 15,000 visitors with the WDP with an imputed value of almost €300,000 per annum at peak.

IV.7 There is one further element of consumer value resulting from the WDP. The NA makes available the services of a genealogist for half a day for free. Visitors consulting the genealogist are requested to sign a visitors' book. From this a sample of 62 days revealed a total of 623 consultations which is an average of ten per half day or about one sixth of all visitors to the NA. Applying that to the total increase in visitors outlined above would mean about 2,500 extra consultations per annum. The value of this to the visitor, in terms of normal fees for genealogist, less the somewhat concessionary rate paid by the NA for the service, is probably of the order of €10 per visitor or €100 a day. This is an additional €25,000 in imputed benefit per annum from the WDP at peak.

IV.8 It should be added that the NA also provides similar services from an archivist. However, there is no separate register of consultations with the archivist (although all visitors are required to meet the archivist when they register for the first time and get some initial assistance). Consequently, no value can be estimated for this service.

Value of Indirect Tourism Expenditure

IV.9 Over 40% of the visitors to the NA are foreign tourists, usually engaged in genealogical inquiries. CBA of tourist attractions usually includes an assessment of indirect spending by visitors and this is appropriate in the case of the projected expansion of the NA. By indirect spending is meant expenditure on travel, food and accommodation which can be attributable to their visit to the NA. But how much of tourist expenditure can be attributed to (i.e. 'caused by') the NA? In the absence of primary research (i.e. survey data) specifically designed to capture the economic impact of the NA, this is difficult to determine. The basic problem is that no one attraction or activity is the

sole reason for a foreign tourist to take a trip involving a number of overnights. It could be that in the absence of the NA the tourists would simply have gone somewhere else in Ireland. Or, at the other extreme, they might have cancelled their entire visit to the country.

	Number	Percent
Latin America	6	0.2
Australia/NZ	291	8.5
Europe	57	1.7
Canada	138	4.0
Asia	4	0.1
UK	355	10.4
Ireland	1953	57.0
Provincial		
NI	65	1.9
Mid East	5	0.2
Africa	5	0.2
USA	546	15.9
	3425	100.0
Source: National Archives Visitor Registration System		

IV.10 The only available approach is to follow the procedure endorsed by Travers and Glaister.⁵ They suggest that the total cost of a visitor's trip should be attributed to an attraction *pro rata* with the proportion of the time spent there. Foreign visitors spend about €94 per day.⁶ The NA's Visitor Registration system shows that visitors spend about two hours in the NA which allowing for local travel to and from the NA probably amounts to about one quarter of day. (See Table IV.4) This procedure means that indirect spending of €24 should be attributed to the NA for each extra foreign visitor. Applying this to the number of foreign visitors expected yields a figure of €150,000 per annum at full capacity.

Hours Per Visit	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7+	All
% Total Visitors	29.3	23.6	16.8	7.4	6.3	9.1	6.5	1.1	2.1
Source: National Archives Visitor Registration System.									

Benefits Summary

IV.11 The benefits of the WDP compared to without the WDP are shown for a selection of years in the attached Table IV.5. The capacity of the warehouse rises in three steps to 340,000 in the period 2017-2021. (Line 1). Demand starts out at the 114,000 boxes now in the warehouse, plus the 2,000 in a CRC and 25,000 emergency boxes in the form of Ordnance Survey maps. It rises at 12,000 boxes per annum following the presumed start of the introduction of the twenty year rule in 2015 before reverting to 7,000 boxes per annum in 2024. At that rate capacity of the WDP is filled in 2030. In the absence of the WDP the increase in demand would go to external storage and would accumulate to 167,000 boxes by the time the WDP would have been at full capacity. (Line 4). The cost of this storage, at that point would be €894,000 and since this would be avoided if the WDP is completed, this represents a saving attributable to the WDP. (Line 5)

IV.12 The next three lines (Line 6,7,8) are devoted to the number of visitors which include foreign visitors and visitors consulting the genealogist. Visitor numbers are presumed to increase with the size of the accessible archive with a small augmentation to allow for the fact that with the WDP the increased archive will be in one location. The imputed value of visits, including consultation with the

⁵ Tony Travers Stephen Glaister *Valuing Museums* (National Museums Directors Conference, London, 2004) p.18

⁶ Fáilte Ireland, Tourism to Dublin (Preliminary Data), (Dublin, 2011)

genealogist and the related indirect tourist expenditure are significant at €468,000 per annum at peak. (Lines 9,10,11).

IV.13 Taking all benefits into account, the WDP realises an annual economic value of about €1.4 million per annum at peak. (Line 13).

Table IV.5: BENEFITS OF THE WDP					
		2017	2019	2021	2030
1. Capacity WDP	Boxes 000s	136	306	340	340
2. Annual Demand		12	12	12	7
3. Storage in WDP		136	211	235	316
4. External Storage Without WDP		48	72	96	167
5. Storage Cost Without WDP	€000s	257	395	514	894
With WDP					
6. Visitors	Num- bers 000s	9	13	14	15
7. Foreign		4	6	6	6
8. Genealogist Consultations		1	2	2	2
9. Consumer Value	€ 000s	171	264	272	295
10. Genealogist		14	22	23	25
11. Foreign Tourist Indirect		86	133	137	149
12. Total Consumer Value Economic Benefits (9+10+11)		271	419	432	468
13. Total Economic Benefits (5+12)		528	804	945	1362

V COSTS

Capital Costs (Table V.1)

V.1 The costs of the project consist in the capital expenditure and the operating expenditure associated with the new facility less any expenses specifically associated with reliance on external storage. For the purposes of economic CBA a number of adjustments have to be made to translate the financial figures into economic values. VAT at 13.5% is included in the capital cost but this represents a transfer for the Government to itself via the contractor and should be removed from the calculation. By the same token the PAYE and PRSI paid by or on half of the workers who will be employed on the development should be removed. Direct labour costs are minimally 35% of building costs and PAYE and PRSI are about 30% of their payroll. This removes a further approximately 10% from the cost of the project to the Exchequer.

V.2 However, economic theory used in CBA insists that Exchequer funds should carry a premium as a result of the distortionary impact of taxes levied to raise them. In other words, the economic cost of Government spending is higher than the nominal. This is called the Excess Cost of Exchequer Funds. The size of this excess is a matter of debate among economists, however, the CEEU of the Department of Finance specifies that project evaluations should apply an uplift or premium of 30% to the nominal cost of a project financed by the Exchequer.

V.3 One final adjustment is for the 'shadow cost of labour' in the building project. This adjustment reflects the belief that nominal wages are higher than their economic level which is the level of payment in alternative employment. Economists consider there are special features of the labour market which prevent wages from finding their economic level even in a recession. The CEEU advises that the shadow (i.e. real economic) cost of labour is rarely less than 80% of the nominal. This means applying a discount of 20% to the payroll and reduces the capital cost of the project. (See Table V.1 below). As it happens the net result of the adjustments is to leave the economic cost of the capital project not much lower than the nominal (Table V.1, Line 1 v Line 10).

Table V. 1: Nominal and Economic Capital Cost of the WDP					
		Phase 1	Phase 2	Phase 3	Total
		2014	2015	2016	
1	Nominal Capital Cost	7.65	7.20	2.85	17.70
2	VAT	0.91	0.86	0.34	2.11
3 = 1-2	Net Capital Cost	6.74	6.34	2.51	15.59
4 = 35% of 3	Labour Cost	2.39	2.25	0.89	5.54
5 = 30% of 4	PAYE PRSI	0.72	0.68	0.27	1.66
6 = 4-5	Exchequer Cost of Labour	1.67	1.57	0.62	3.88
7 = 3-5	Exchequer Cost of Project	6.02	5.67	2.24	13.93
8 = 30% of 7	Excess Cost of Public Funds	1.81	1.70	0.67	4.18
9 = 20% of 6	Adjustment for Shadow Cost of Labour	0.33	0.32	0.12	0.78
10 = 7+8-9	Economic Cost of Investment	7.49	7.05	2.79	17.34

Operating Costs

V.4 The development of the warehouse will lead to changes in operating costs by comparison with the situation under the alternative, i.e. the use of CRCs. These are considered under four headings: manpower, utilities, maintenance and cleaning.

Payroll

V.5 Expansion of the archive from 214,000 to 520,000 boxes, and the associated increase in readers' demands will entail an increase in employment. However, most of the work associated with the cataloging, indexing and boxing of archives will be the same whether they are stored in Bishop Street or in a CRC. This also applies to staff at the information desk and the archivists and genealogists on call in the Reading Room.

V.6 However, there are some manpower cost differences between the two scenarios:

- With the WDP there will be retrieving and returning of boxes within the warehouse which will be handled by the CRC if the WDP does not go ahead.
- Without the WDP there will be a double handling of boxes in Bishop Street as boxes come in from the CRCs.

V.7 The best estimate the consultants can make is that increased activity in the refurbished warehouse will come to about €180,000 at peak. In the model it is presented as a gradual build up following completion of the project. However, as against that, the double handling of boxes coming and going between the CRCs should the warehouse not be developed, is estimated at about €70,000 at peak. The net increase in costs under this heading is therefore about €110,000. As in the case of building manpower, payroll is subject to a reduction for the PAYE/PRSI element and to the adjustment for the shadow cost of labour. (See Table V.2, Lines 1 to 4). The net result is that net manpower costs will be an additional €59,000 with the WD. (Line 5).

Utilities

V.8 Similar considerations apply to other cost headings: utilities, maintenance and cleaning. At the moment the warehouse delivers a poor standard of heating and lighting and no control of humidity. Because the plant is old this is relatively costly. On the other hand the redevelopment of the warehouse will include the latest technology for control of temperature and humidity and for lighting and fire safety. The new system will therefore deliver a vastly improved level of service. But although it will be highly energy efficient there will nonetheless be an increase in energy costs by comparison with the present situation. It is understood this will be in the order of €11,000 per annum. The cost rises in tandem with the three phases. (Table V.2, Line 6)

Maintenance

V.9 The same reasoning applies to the warehouse. The warehouse in its present condition has incurred significant maintenance costs in recent years. One major project was repair to the roof which cost of the order of €1 million and was justified as the first step in the WDP. It can be foreseen that in the absence of a complete refurbishment maintenance of the building would become a progressively more significant problem into the future. On the other hand the newly refurbished warehouse would require little maintenance but being a more elaborate facility any maintenance is likely to be expensive. It is estimated that the net increase will amount to €27,000 per annum at peak. In assessing the realism of this figure it should be borne in mind that it is an average over the life of the project. (Table V.2, Line 7).

Cleaning

V.10 Cleaning costs at Bishop Street and Four Courts amounted to €179,000 in 2012. The contract is due to be renegotiated shortly and it is hoped that savings would permit the extra space created in the warehouse to be included at no extra overall cost. The extra warehouse space will increase the area cleaned by approximately 23% but will require less intensive treatment than the Front Block floors. A figure of €21,000 is adopted as a reasonable level of cost in the new facility.

V.11 In Table V.2 these costs are subject to a deduction for VAT. The labour content of these costs is not known, therefore, there is no discount made for the shadow cost of labour.

Excess Cost of Exchequer Funds

V.12 As a state body supported by a grant in aid from the Exchequer and generating little financial revenue, the NA's operating costs attract the Excess Cost of Exchequer Funds. As explained with regard to capital expenditure above, this is an uplift of 30% in net transfers from the Exchequer for the cost of the WDP. Normally an addition to operating as well as capital costs, this item is treated here along with the operating costs but as will be seen, it is negative cost i.e. it is a positive. This is because in this evaluation the WDP will generate Exchequer savings in that the alternative to the use of the refurbished warehouse will be the use of relatively expensive external storage, the cost of which will have to be borne by the Exchequer. As Section IV showed, the benefits from avoiding storage costs are almost €0.9 million. If Exchequer capital costs should be uplifted by the premium it follows that Exchequer operating benefits should also be uplifted. As a consequence of that the Excess Cost of Exchequer Funds in this analysis of operating costs is a positive addition to the net benefits. It is also quite substantial: at peak it is worth about €232,000 per annum. (Table V.2, Line 12). The net result is that operating costs, including the Excess Cost of Exchequer Funds, are negative in most years, that is, an addition to the benefits.

Table V.2: OPERATING COSTS					
		2017	2019	2021	2030
1. Net Payroll WDP		56	87	92	105
2. Less TAX		17	26	28	31
3. Payroll After Tax	1-2	39	61	64	73
4. Less Shadow Cost		8	12	13	15
5. Economic Cost of Manpower	3-4	31	49	51	59
6. Net Energy WDP		4	10	11	11
7. Net Maintenance WFP		11	24	27	27
8. Net Cleaning WDP		8	19	21	21
9. Total Net Utilities	6+7+8	23	53	59	59
10. Less VAT		5	11	12	12
11. Utilities after Tax	9-10	19	43	47	47
12 Excess Cost of Funds*	12 x 30%	-60	-85	-121	-232
13. Net Operating Economic Costs	5+9+11	-10	7	-22	-126
*On Exchequer costs of		-199	-282	-402	-773

Qualitative Factors

V.13 There are other costs associated with off-site storage which are impossible to factor but are important. The most significant is the professional opinion of the NA that archives in commercial

storage are at greater risk of damage or loss than when under direct supervision of the NA on its own site and in a purpose built structure. In principle the risk element of this could be tested by observing premia in the insurance market. But heritage items (art galleries, museums, libraries) are not insurable, so there is no market. This item cannot be evaluated in economic terms, but is real enough.

VI THE COST BENEFIT ANALYSIS

Overall Result

VI.1 The overall result is summarised in Table VI.1. below and the summary measures are shown in Table VI.2. Initially the project experiences outflows due to the heavy upfront capital cost. The project then generates net benefits but it is not until 2030 that the project hits full capacity because of the slow build up envisaged.

Table VI.1:SUMMARY COSTS AND BENEFITS							
(€000s)							
	2014-16	2017	2018	2019	2020	2021	2030
Capital Cost							
1.Economic Capital Cost of WDP	7739	3380	3380	1567	1225	49	0
2.Net Economic Operating Costs		-10	-32	7	-11	-22	-126
Benefits							
3.Storage Costs Avoided		257	321	385	450	514	894
4.Consumer Value		271	271	419	425	433	468
5.Total Economic Benefits (3+4)		528	592	804	875	945	1362
6.Net Costs/Benefits (5-2)		538	624	797	886	967	1489
9.Net Costs/Benefits Less Capital Costs (6-1)	-7739	-2842	-2755	-770	-339	919	1489

VI.2 The summary measure of the value of a capital project is the Net Present Value (NPV), the figure which results from discounting the future flows of costs and benefits by a specific rate of interest known as the Test Discount Rate (TDR). For public sector projects the CEEU has specified the use of 5%, which, since it is in real terms, is a challenging rate of return. The other approach, which should give similar results, is the Internal Rate of Return, (IRR), which is whatever rate of interest discounts the future flows of costs and benefits to nil. Any IRR over 5% meets the CEEU's standard. The third measure is the Benefit Cost ratio which is the discounted value of the net of benefits and operating costs divided by the discounted cost of the investment. Anything over 100 is positive.

Table VI. 2 SUMMARY MEASURES		
NPV	€ million	4,465
IRR	Percent	6.81
Benefit/Cost	Ratio	137.7

VI.3 As Table VI.2 shows, the project meets the CEEU's criteria for a viable public sector project. Although nominally, that is in terms of financial terms, the project generates no revenues and incurs

some operating as well as capital costs, when allowance is made for Exchequer transfers and for economic factors, especially the Excess Cost of Exchequer Funds, the project is strongly positive in economic terms.

Sensitivities/Risks

VI.4 The conclusion is sensitive to a number of the assumptions and parameters used in the model. The most important of these are:

Estimated/forecast parameters

The level of annual archive demand: if this turned out to be more rapid than projected here, the economics of the project would be improved, since the benefits would be brought forward. On the other hand, if the annual demand declined because of, e.g. digitisation, there would still be the backlog of archives now scattered around Government Departments which would take their place and the archives of the scheduled bodies. Therefore, while the evaluation would be sensitive to a decline in demand for archive space, it seems unlikely to occur in the forecast period.

The costs of storage. The cost of storage is a function of fees and charges levied by CRCs multiplied by the rate of usage of boxes in CRC. Costs vary with the market and are probably relatively low at the moment. It would require a drop of 30% on these rates to make the project borderline in economic terms which seems highly unlikely. In addition, this calculation makes no allowance for the superior quality of a purpose built archive *vis á vis* commercial storage

Growth of visitors. Consumer value and indirect touristic benefits are significant. They are projected as a function of the size of the archives. Over the long run, interests of the public change and the projected numbers may fail to materialise. Or they might turn out to be bigger. But it would require a fall of more than 50% in the projected numbers to endanger the viability of the project. Again, this seems unlikely.

Life of Project. The benefits are discounted over a period 40 years from completion. This is a conservative assumption about the life of the project. Raising the period to 50 years increase the NOV by about €1 million and the IRR by about 0.23%.

Given Parameters

Capital Cost: The project is not very sensitive to changes in capital costs. Capital costs would need to rise by more than 30% above the estimate to push the outturn of the WDP project below the criteria.

Policy variables. It is important to assess the sensitivity of the project to changes in policy variables prescribed by the authorities, that is, the TDR and the Excess Cost of Exchequer Funds. An increase of 2.0% points in the TDR (i.e. a TDR of 7) would be required to put the project into the red. On the other hand because there are positive as well as negative transfers from the Exchequer no plausible increase in the ratio from 30% would threaten the viability of the project.

Non Quantifiable Factors

VI.5 The above analysis is based on costs and benefits which can be quantified and expressed in economic terms. However, many projects in the public sector cannot be evaluated either at all or at least not completely in economic terms. This is obvious when one considers functions in the areas of justice, defence, education and, as in this case, heritage.

VI.6 As was noted, the project is not credited with any benefit from archiving the 114,000 boxes now in the warehouse nor the 25,000 boxes in urgent need of attention in the Ordnance Survey. It is not possible to quantify this benefit if the alternative to the WDP is to leave these materials where they are, which seems to be the case. Also, at a technical level the use of CRCs does not assure the same standards of security and preservation that would be provided by a purpose built archive under the immediate control of NA staff. As noted elsewhere this is a real cost but one which cannot be quantified.

VI.7 At a legal level the NA has to be equipped to do the job laid down by Statute or the Statute has to be changed. In fact the Statute was changed when a stay was put on delivery of archives from the scheduled bodies. But it is clear that even with the suspension of this part of the Act, the NA is not in a position to meet the residual obligations of the Act.

VI.8 These obligations fundamentally arise, not from statute, but from the recognition that archives have a vital role in all that pertains to the exploration of the history of the country, whether from the personal, local or national perspectives. Access to government documents is also an important element in ensuring the transparency and accountability of government to its citizens. Arguably, in the preservation of and access to its archives, Ireland is falling behind the standard of northern European countries with significant loss to national culture.

VII DIGITISATION

VII.1 By making physical archives available in digital form, digitisation offers the possibility, in principle at least, of alternative scenarios to those considered above. Digitisation of files in the backlog or of the annual releases could reduce the need to refurbish the warehouse or reduce the demand for space in Departmental and commercial stores.

VII.2 However, while there are a number of reasons for digitising archives, economising on real estate is rarely one of them. Most archives engage in digitisation to some degree of another, but the reasons for doing so are mainly to

- Make digital copies of material which is fragile or very valuable and to which therefore the public cannot be given direct access;
- Open up files for remote access via the internet and to speed searches through the attachment of metadata (reference codes, key words, names, and so on).

VII.3 Digitisation is usually a complex process in which the physical scanning of the item is a relatively minor part (about 10% of the total cost). Digitisation of archives involves:

- Selection, preparation and preservation of material
- Prioritisation of material (based on historical or 'informational' value)
- Creation of a digital surrogate (photograph or scan)
- Optical Character Recognition (OCR) interpretation of text
- Creation of catalogue, item, or collections-level metadata
- Provision of 'meta' metadata

VII.4 The cost of digitisation depends on

- The condition of the material to be digitised: its fragility, regularity of size, complexity, other physical features and whether it has already been archived;
- The efficiency with which digitisation can be performed (e.g. possibilities for capturing economies of scale, availability of skilled manpower, dedicated spaces and equipment);
- The quality, scope and durability of the output (principally the digital medium and the metadata).

VII.5 In a comprehensive survey of digitisation in libraries, museums and archives throughout the EU, Poole, concludes that the cost of digitising the simplest documents is about €4 a sheet.⁷ This evaluation is about archives still in Departmental stores so that they are probably of the simplest type being A4 typewritten pages, filed in an orderly way and in good physical condition. However, even these archives will include drawings, maps and diagrams which complicate the digitisation process.

VII.6 At €4 a page, digitisation of a standard archive box would cost about €4,000. This is clearly not economical in terms of storage space since archive boxes can be stored for around €5 a box per annum.

VII.7 In fact the return is far less than that. In archival practice there is no suggestion that once digitised, the originals can be discarded. The reason for this is that digital media are themselves

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fragile. Also, digital formats change and new technologies can permit more sophisticated types of digitisation. But this is usually only possible if the original hard copy has been preserved. The consequence of this is that archives will take up as much space after digitisation as before. The only saving therefore comes from the possibility of substituting remote lower cost storage for costly inner city Government offices. Clearly this saving is only a fraction of €5 per box.

VII.8 Like other archives, the NA has run digitisation programmes. Two projects which illustrate the different types and cost levels of digitisation are the Soldiers Wills and the 1901 and 1911 Censuses. The Soldiers Wills is an archive of 9,300 wills of soldiers killed during the First World War and comprising perhaps 35,000 pages. This material was too delicate for direct access to the public but nonetheless it was considered that the material was of high archival value – especially with the approach of the First World War anniversaries. Given the absence of resources, this archive was digitised over a number of years by personnel of the NA on an *ad hoc* basis in intervals between their other responsibilities. The NA “guesstimates” that the work probably took an aggregate of about eight man years. Allowing for overheads, that indicates a cost of about €10 a sheet – a not unreasonable figure for difficult and delicate material.

VII.9 The Censuses are at the other end of the scale. They are sufficiently robust to be accessed by the public but digitisation offered the possibility of widening access via the internet. This programme was financed by a special grant in aid from the Department of the Arts and was contracted out to a specialist company. The cost of this programme was €4.5 million or about €1 per original sheet. However, the documents had already been micro filmed through the agency of the Church of the Latter Day Saints and had involved a lot of voluntary work. Digitisation from micro film was comparatively easy.

VII.10 In summary therefore, digitisation has an important place in activities of national archives. But it can only be justified by the need to protect rare and vulnerable material and to improve access. Even in respect of that, the cost is such that only a fraction of the total can be digitised.

Appendix I

Selected Parameters			
Capital Cost of WDP			
Archive Capacities (000s Boxes)		Storage Costs (€/box)	
Effective Capacity of WDP	306	Annual	5.2
		RTR	0.2
Bishop Street	124	Total	5.4
Four Courts	90		
CRC	2	Economic Factors	
Total Actual	216	PAYE/PRSI (% payroll)	30.0
		Shadow Cost of Labour (% payroll)	80.0
		Excess Cost of Exchequer Funds (%)	30.0
Annual Demand		Test Discount Rate (%)	5.0
Normal releases	5		
Emergencies	2		
Twenty Year Rule	5		
Visitors			
Additional visitors to NA (max)	15000	Tourist Expenditure (€/day)	94
Visitors % Archived Boxes	7	'Dwell Time' (% day)	25
Visitors % Bishop St	2	Consumer Value €/visit)	20
Foreign % Total	43		
Operating Costs (\$000s)			
Payroll with WDP (max)	180		
Payroll without WDP	70		

Appendix II

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