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DUBLIN BAY

An Integrated Economic, Cultural and
Social Vision for Sustainable Development

Cost Benefit Analysis: Executive Summary



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Executive Summary

Background

This document is an Executive Summary of the Cost Benefit Analysis Report which represents an Annex to the overarching report: "Dublin Bay - An Integrated Economic, Cultural and Social Vision for Sustainable Development." It assesses both the financial and economic costs and benefits (quantitative) and the wider qualitative costs and benefits associated with each of four shortlisted options examined in the study. These options were developed by the project team to provide a range of scales of port land redevelopment, which have very different economic outcomes as well as social, amenity and cultural opportunities:

- Option 3 - Optimise operations, facilitate cruise liner service and relocate dry bulk operations to an existing port(s); no reclamation on the northern peninsula;
- Option 3a - Optimise operations and reclaim land for future growth of the port (a variation on Option 3);
- Option 5 - Optimise operations, reclaim land, relocate dry bulk operations and relocate oil storage offshore; and
- Option 7 - Relocate Port to a new site with exception of a new cruise liner terminal and scheduled ferry services that are to be retained in Dublin Port.

The aim has been to provide an objective assessment on the relative strengths and weaknesses of each option, within the scope of work specified in the Terms of Reference for the study.

This high level study set out to discover whether relocating either some or all of Dublin Port would be cost-effective and to assess the economic impact of doing so on Dublin City. Given the conceptual nature of this study at present, the cost information used is based on the best information available at the time. In light of this the findings should be interpreted with care as some of the variables, such as revenues from land sale, capital costs, compensation to leaseholders and the intensity of development assumptions may be subject to significant variation. This means that the final Net Present Value (NPV) and economic impact figures could vary significantly when more detailed assessments are undertaken should the project be progressed.

The analysis has been undertaken in two ways:

1. A cost benefit analysis that measures all quantifiable cost and revenue flows associated with the development of the new port. This yields a Net Present Value (NPV): a single figure giving the current day equivalent value for the 25-year stream of incomes and expenditures.
2. An economic impact assessment which takes a wider view of economic growth driven by increased numbers of jobs and residencies.

In addition intangible costs and benefits have been assessed for each option (i.e. criteria which cannot be measured in monetary terms).

Cost Benefit Analysis

Options 3 and 7 are the only options with a positive Net Present Value (NPV), (€741 and €734 million respectively). This is only a marginal difference, but a number of factors need to be taken into consideration in the assessment of these figures:

- Firstly, Option 3 does not deliver a sustainable long-term solution to DPC's land requirements which will increase as their future trade grows. In contrast, Option 7 delivers a new operating port with 100% of costs included.
- Secondly, the sensitivity analysis that has been undertaken highlights that, in terms of the NPV, Option 7 is a very high risk project compared to Option 3 due to the scale of investment required to relocate the port and the sensitivity of its NPV to key variables, including land values, capital costs, and compensation payments to leaseholders.
- Finally the debt financing requirements (based on a 25 year development plan) for Option 7 are extremely onerous compared to Option 3. The maximum cash deficit for Option 7 is €1.4 billion in year 13, compared to €100 million for Option 3 in year 5. Also, the final cash balances in year 25 are poorer for Option 7 at €370 million as compared to €1 billion for Option 3.

To assess the sensitivity (and therefore robustness) of the NPV process the most significant assumptions in the appraisal were varied: the rate of leaseholder compensation, the capital development costs and revenues from sale of the existing port site. Combining these into best and worst case scenarios show that the overall results and order of preference between the options can change under these extreme conditions.

Sensitivity test results for Net Present Values, € millions

Option	Best case	Base case	Worst case
Option 3	€ 1,311	€ 741	€ 229
Option 3a	€ 217	-€ 296	-€ 782
Option 5	€ 280	-€ 754	-€ 1,708
Option 7	€ 2,818	€ 734	-€ 1,317

Economic Impact Assessment

To provide a balanced assessment the wider economic benefit associated with each of the options was analysed. These benefits occur because of a general growth of the economy as a result of the options through more business activity, employment and residencies.

Option 7 presents the largest benefits in terms of employment, Gross Value Added (GVA) and new residential stock. Under Option 7, Dublin City would gain in the region of:

- Up to **78,000 net additional jobs** (circa 2% of the existing workforce in Dublin);
- An addition of almost **€6 billion to GVA** at Dublin City level; and
- An increase in the housing stock of at least **27,800 residential units**.

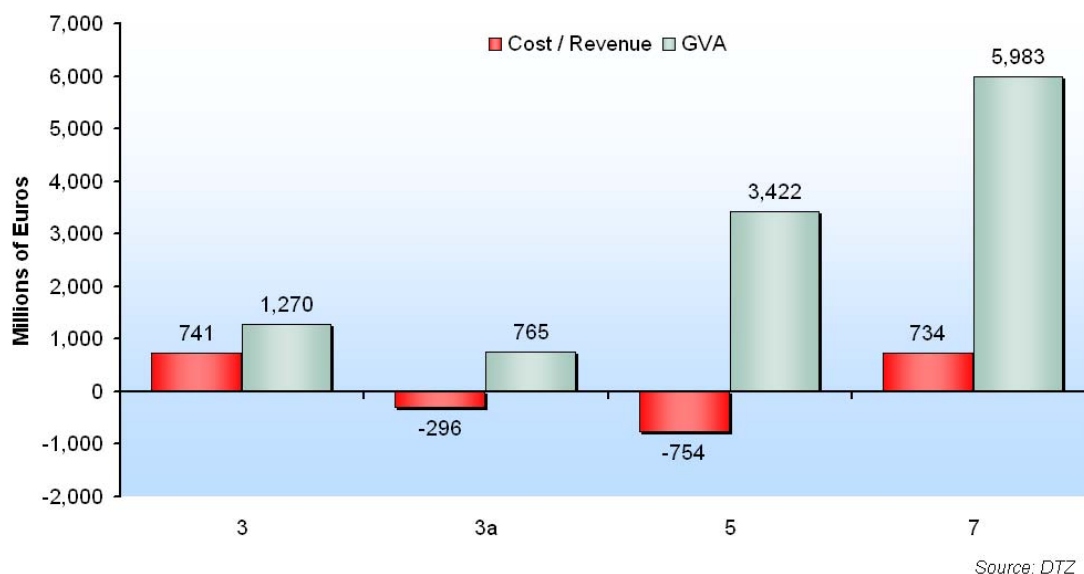
At the national level Option 7 provides c. 24,700 net additional jobs for Ireland and €1.7 billion in GVA. The important point to note is that these net economic impacts are annual and sustained year on year.

In addition, tax revenues are also expected to increase substantially should this development go ahead. At present the taxation system in Ireland is equivalent to one third of GVA. Using this as a proxy Option 7 would result in an additional €0.5 billion in tax revenue each year.

The Financial Balance and Economic Impact on Dublin

The Figure below shows the financial balance (the 25 year net Present Value) for each of the four options together with the economic impact on Dublin (GVA generated in year 25). The GVA figure will be generated annually once the project is complete.

Financial Balance and Economic Impact on Dublin



The key points are:

- Options 3a and 5 have negative Net Present Values and are not commercially attractive from a development perspective;
- Options 3 and 7 are virtually identical in delivering strong Net Present Value figures (over €700 million); and
- However, Option 7 stands 'head and shoulders' above Option 3 on the basis of its economic impact at both the Dublin and Irish levels.

Qualitative Analysis

There are a number of cost-benefit factors that either cannot be quantified, or are difficult to quantify accurately, within a financial and economic appraisal. However, these are critical considerations when making the decision to proceed with any of the options and so they must also be captured and assessed as part of the overall appraisal process. Indeed, if several options are economically viable, then it might be expected that these intangible benefits will drive selection of the preferred option. They include:

- Environmental impacts;
- Social impacts and the quality of public amenities;
- Lifestyle;
- Image and potential for future growth; and
- Efficiency of land use and Port operations.

Quantification of these factors is very difficult, but it is possible to make a relative assessment between the options. The following table summarises the qualitative analysis and provides an order of preference for each criterion. For each indicator, the options have been rated as either:

High - the option demonstrates the highest relative benefits (or lowest cost)

Medium - medium benefit or cost

Low - the option demonstrates the lowest relative benefit (or highest cost)

Summary of Qualitative Analysis

Qualitative criteria	Indicator / driver	Option		
		Status Quo: Port stays at same site (Option 3a)	Partial relocation (Options 3 and 5)	Full relocation (ex cruise ships) (Option 7)
Economic	Jobs and growth (Dublin)	Low	Medium	High
	Image of Dublin as a destination (investment, tourism, migrants)	Low	Medium	High
	Destination of exports & imports	Medium	Medium / High	High / Medium
	Transitional costs	High (denotes lowest cost)	Medium	Low (denotes highest cost)
Efficiency of Port operations	Additional land to meet future growth	Low	Medium	High
	Investment in equipment and facilities	Low	Medium	High
	Terminal operating practices / layout	Medium	Low	High

Summary of Qualitative Analysis (continued)

Qualitative criteria	Indicator / driver	Option		
		Status Quo: Port stays at same site (Option 3a)	Partial relocation (Options 3 and 5)	Full relocation (ex cruise ships) (Option 7)
Market opportunities for the Port	In-coming cargo	Low	Medium	Medium / High
	Export growth	Medium	Medium	Medium / High
Social and housing	Demand for housing	Medium	Medium / High	High
	Supply of sites / planning	Low	Low / Medium	Medium / High
	Lifestyle / level of amenities	Low	Medium	High
	Image of Dublin - new development	Medium	Low	High
Environmental	Environmental costs	Medium	Medium	Low (Indicates highest cost)
	Environmental benefits	Low (Indicates lowest benefit)	Low / Medium	Medium
	Sustainability	High	Low	High
	Port traffic	High	Medium	High
Overall Qualitative Assessment		Low	Medium	High

This matrix analysis of qualitative factors highlights the relative attractiveness of Option 7 - full relocation - compared to the other options.

Summary of Findings

The table below presents an overall evaluation of the projects. It shows the discounted cash flows for the development project options and for the GVA impact on Dublin. The two are then combined to give the overall development project balance. A ranking for the qualitative analysis undertaken in Section 5 is also presented.

Summary of appraisal findings

	Option			
	Status Quo: Port stays at same site (Option 3)	Status Quo: Port stays at same site (Option 3a)	Partial relocation (Options 3 and 5)	Full relocation (ex cruise ships) (Option 7)
Development Project NPV	741	-298	-754	734
GVA impact at Dublin level (NPV)*	530	302	744	1,327
Combined NPV	1,271	4	-10	2,061
Relative qualitative rank	Medium	Low	Medium	High

Note: * The GVA figures represent the discounted value over the 25 year horizon of the appraisal and have been calculated in this way to provide a comparable figure to the financial NPV figures. However, in economic terms the important impact figures are the annual GVA figures, which are sustainable on an on-going basis beyond year 25.

Option 7 offers the highest combined Net Present Value figure of over €2 billion, which incorporates both the financial appraisal and economic impact assessment. This is significantly higher than the €1.3 billion of Option 3. In summary, therefore, Option 7 provides the greatest long term benefits to the Dublin and Irish economies.

Option 7 also confers the strongest qualitative impact in terms of efficiency of port operations, environmental, social and housing factors. From this preliminary analysis Option 7 is preferred since it:

- Creates the highest level of additional employment - 78,000 new jobs in Dublin and 24,700 in Ireland;
- Gives the highest level of additional GVA - €6.0 billion for Dublin and €1.7 billion for Ireland;
- Generates the most sustainable long term position meeting market needs; and
- Confers qualitative improvements for the operation of the Port, the environment, housing provision and social benefits.

However, the scale of the project, the attendant risks and the sensitivity of NPV and GVA results to a number of key variables must temper this endorsement for Option 7 until more detailed work has been completed. Option 7 also has major funding implications resulting in significant debt financing figure of €1.4 billion in year 13).

Recommendations

At this stage the cost-benefit analysis cannot provide definitive answers, however, there is sufficient evidence to justify progressing to a more detailed investigation. The analysis demonstrates that a full relocation of the Port (except the cruise liner terminal and the ferry services) is potentially a viable option and one that should be investigated in more detail as an alternative to Option 3 (or a variant) based on the retention of significant elements of the existing Port.

This would involve a more detailed review of the scope, content and quantification of the options, paying particular attention to the phasing of the options and the image that such a development could project. It should include more detailed consideration of density assumptions, housing provision, public realm works, the role of iconic flagship projects and possibly a themed economic cluster approach. The cash flow, funding implications and delivery vehicle options should also be examined in detail. This first level analysis provides a sound base, but more detailed work is necessary before any investment and/or Port relocation decisions are taken.

