Institute for Sustainability

iTransfer
sustainable ferry travel

SEStran Ferry Toolkit

Section 5: Business Plan for a Ferry

SEStran
South East of Scotland Transport Partnership

The Interreg IVB North Sea Region Programme
Investing in the future by working together for a sustainable and competitive region

European Regional Development Fund
Investing in your future

This document is part of iTransfer, a North Sea Region Interreg programme project, which is funded by the European Regional Development Fund.

iTransfer (Innovative Transport Solutions for Fjords, Estuaries and Rivers) aims to make ferry transport more freely accessible and sustainable, and encourage more people to travel by water. In areas in the North Sea Region (NSR) there are opportunities to replace existing vehicle routes with passenger ferries as a viable alternative. Travelling by ferry is more sustainable, easier and quicker. It can also provide lifeline services to remote communities.

For more information visit www.itransferproject.eu

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Section 5: Business Plan for a Ferry

1. Developing a Business Case

1.1. In developing the business plan for a potential ferry service the following factors should be considered:-

2. Patronage

2.1. The potential patronage over the lifetime of the service should be calculated. This can be based on home or user surveys, transport modelling or trials over a short period. Care should be taken to ensure an understanding of the types of passengers likely to be carried, e.g. commuters, business or leisure including seasonal variation, frequency of travel and growth over time.

2.2. A similar understanding should be developed for volumes and types of freight. This is potentially more difficult to acquire and although freight models have been developed, will most likely depend on close contact with potential customers and knowledge of the market.

2.3. These considerations will determine the type, size, speed and frequency of sailing of the vessels required to meet the demand. An understanding should be developed of the elasticity of demand with relation to quality of vessel, speed of journey and frequency in order to maximise potential patronage through designing the service to best meet the needs of the customers.

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3. Fares

3.1. An estimate of fares levels for both passengers and freight should be developed. Consideration should be given to variations by time of travel and by season and whether special fares should be offered for different types of passenger or regular freight customers. In considering fare levels the cost and time associated with alternative travel modes, or competing ferry services should be considered and whether the fares levels will rise or fall over time. Finally consideration should be given to whether the fares will attract any form of public subsidy.

3.2. An understanding of elasticity of demand with respect to fares should be developed to develop the most appropriate fare levels designed to maximise demand while delivering a profitable service.

3.3. Where relevant, the income from on shore car parking should be considered as part of the overall fares setting exercise.

4. Period of the Business Plan

4.1. The period over which the business plan should be developed can depend on a number of factors including:-

- The period on any public sector support contract/franchise relative to the service
- The effective life of key infrastructure e.g. the vessel, pontoons/harbour infrastructure
- Craneage or other equipment for handling freight
- Life of on shore buildings
- The period over which reasonable estimates of market conditions can be made allowing for likely changes.

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- The period over which the operator can obtain funding and pay back requirements of lenders.

4.2. This can result in fairly short term analysis if an early return on investment is required or if the relevant support contract/franchise is short term or to a long term analysis if the operator is prepared to take a longer term view on investment. In any event the period is likely to cover a number of years.

5. Capital Costs

5.1. The establishment of a new ferry service will invariably require capital investment. This could include:-

- Construction/acquisition costs of vessels
- Port/harbour costs could include:-
  - Pontoons/landing areas
  - Link spans
  - Key side strengthening
  - Passenger waiting/ticketing facilities
  - Loading/unloading plant for freight operations
  - Car parking
  - Lorry and car queuing areas
  - Freight storage areas
  - Warehousing
  - Office accommodation for operations staff
- Depreciation/replacement allowances

5.2. Depending on the detailed negotiations to establish the service some of these capital costs could appear as revenue costs in the form of leases or harbour charges. In any event they will show in the business plan as some

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form of annual cost either as a direct cost or a depreciation/replacement allowance.

6. Revenue/operating costs

6.1. The annual operating costs of the service should make allowance for the following costs:-

- Vessel lease costs
- Loan charge repayments
- Fuel costs at optimum and most likely operating speed
- Average load factors
- Crew costs allowing for rotation
- Catering costs
- Consumables supply costs
- Harbour charges
- Pilotage charges
- On board maintenance and dry dock charges
- Depreciation
- Marketing/management/administration
- Insurances
- Support for on shore public transport connections
- Staff training

7. Tax and Subsidy

7.1. The tax and subsidy regime will depend very much on the country of operation of the service. For example the ability to attract tax allowances for capital invested and allowances for early years non profitable operation can have a significant effect on the overall business plan. In addition the ability to attract public sector support either through operating subsidy or contributions

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to capital costs can be significant. Public sector support can be justified on a number of criteria including consideration of whether it is a lifeline service or whether the service produces environmental benefits. These should be built into the annual performance of the service as appropriate to the country of operation's rules.

8. Profit and Loss

8.1. The profit and loss of the operation should be calculated on an annual basis to establish operating profit. With a view to establishing whether the project provides added value, the net present value (NPV) taking account of the relevant discount rate to reflect the fact that money in hand today has a higher value than money earned in future rates should be calculated. This discount rate will vary from country to country and from time to time and is separate from considerations of inflation. The NPV of an investment is the difference between net income or returns and investment. A project with a positive NPV is one that provides added value to the business.

8.2. An alternative measure of the financial performance is the Internal Rate of Return (IRR) which is the rate of return at which the NPV equals zero. This can be used to evaluate whether a particular project should be preferred over another different project.

8.3. A template for a commercial business plan for a ferry operation is shown below, which is based on the general principals outlined above and which will guide the preparation of a detailed business plan.

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8.4. The following is based on a 12 year period. While public sector investment is generally evaluated over a much longer period, the 12 year analysis reflects the likely life of the vessel and the private sector expectation of returns.

Base Case Appraisal													
	Years												
SUMMARY PROFIT & LOSS ACCOUNT	0	1	2	3	4	5	6	7	8	9	10	11	12
Assumes Portobello													
REVENUE													
Passenger Ticket Sales													
OPERATING COSTS													
Direct operating costs													
Terminal costs													
Craft leasing costs													
Depreciation													
Marketing/Management/Admin													
Total operating costs													
OPERATING PROFIT/(LOSS) before subsidy													
Revenue Subsidy/Grant Funding													
OPERATING PROFIT/(LOSS) after subsidy													
SUMMARY CASH FLOW													
Operating Profit													
Depreciation													
EBIDA													
Tax													
Capital expenditure - qual													
Capital expenditure - non qual													
Pre financing cash flow													
Discounted cash flow													
Return Calculation													
Discount Rate													
NPV													
IRR													
TAX CALCULATIONS													
EBITDA as above													
Capex													
Cash Balance est													
Capital allowances													
Interest on cash flow at													
Taxable profit (loss)													
Loss utilised													
Taxable profit after loss relief													
Tax at													
Loss brought forward													
Loss utilised													
Loss carried forward													

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		Years											
PROFIT & LOSS ACCOUNT	Set-up	1	2	3	4	5	6	7	8	9	10	11	12
		2 craft											
REVENUE													
Passenger Ticket Sales													
CRAFT COSTS													
Depreciation													
Operating Lease													
Craft Maintenance													
Craft Fuel													
Craft Insurance													
Salaries & National Insurance													
Inflationary Increase Assumed	%												
TERMINAL COSTS													
Terminal Staff Salaries													
Terminal Building Costs													
Ports Charges													
Ramp Charges													
Cost of Bus Service Net													
Telephone													
Printing, Stationary, Tickets & Post													
Sundry Staff Expenses													
Professional Fees													
Buildings Depreciation													
ADMINISTRATION & MARKETING													
Marketing													
Administration Staff & Management Recharges													
Total Costs													
OPERATING PROFIT/(LOSS) before subsidy													
Subsidy													
OPERATING PROFIT/(LOSS) after subsidy													

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Estimated passengers carried by trip Years 1 to 5					
	Year 1	Year 2	Year 3	Year 4	Year 5
Pax journeys per weekday					
Total Mon-Fri					
Weekend/leisure					
Total pax journeys per week					
Average Yield	£0.00	£0.00	£0.00	£0.00	£0.00
	0.00%	0.00%	0.00%	0.00%	0.00%
Revenue per week	£0.00	£0.00	£0.00	£0.00	£0.00
	0.00%	0.00%	0.00%	0.00%	0.00%
Revenue per annum					
Passengers per annum					
Ticket Prices, average return fare per day					
Peak return					
Off Peak Return					
Leisure Return					
Increase					
Peak Return					
Off Peak Return					
Leisure Return					

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Year 1												
Monday - Friday												
	Departure	Arrival	Pax No.S	Ave Fare	Revenue		Departure	Arrival	Pax No.s	Ave Fare	Revenue	Total Revenu
Total												
Rev per week												
Pax per week												
Rev per annum												
Pax per annum												
	Total Annual											
	Total Passengers											
	Average Fare											
	Max Capacity Calc											
			Trips per day	Days per week	Seats per trip			Weeks per year	Days per year	Max Capacity		
	Weekday Capacity											
	Sat Capacity											
	Sun Capacity											
	Max Capacity											
Year 2			**Pax Growth**						**Peak Fare Rise**			**Off peak fare rise**
Monday - Friday												
	Departure	Arrival	Pax No.S	Ave Fare	Revenue		Departure	Arrival	Pax No.s	Ave Fare	Revenue	Tota Revenue
Total												
Rev per week												
Pax per week												
Rev per annum												
Pax per annum												
	Total Annual											
	Total Passengers											
	Average Fare											
	Max Capacity Calc											
			Trips per day	Days per week	Seats per trip			Weeks per year	Days per year	Max Capacity		
	Weekday Capacity											
	Sat Capacity											
	Sun Capacity											
	Max Capacity											

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And so on for future years and for weekends.

	Capital Costs						
	Terminal Capital Costs						
		Cost Estimate		Asset Life		Dep'n pa	
	Landing 1						
	Landing 2						
	Hangar & Facilities						
				£			
	Craft 1						
	Craft 2						
	Terminal Costs						
	Craft Estimate Summary					**Terminal/Infrastructure Estimate**	
	Hull					Landing 1	
	Engines, Fuel Systems etc					Other Facilities	
	Transmission						
	Controls					Landing 2	
	Flexible Structure					Hangar	
	Electronics etc					Groundworks	
	Design						£
		£					
	Provisional Sums					Local Authority Funding	
	Propellors						
	Seat Covering						
	Aircon						
	WiFi						
	Life Saving Appliances						
	Total cost per craft						
	P&L Impact						
	Craft Owned (O) or Leased (L)						
		Yr 1	Yr 2 on				
Craft							
	Craft total						
15	Years depreciation SL						
	Lease costs pa						
	Lease deposit (refundable at end)						
Infrastructure							
	Total Spend						
	Less LA Funding						
	Net capex						

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Projected Craft Operating Costs - Non staff			
Operating Costs			
Warranty		**1 yr**	**1000 hrs**
Total Annual Operating Hours			
Engine Maintenance, per engine			
Propellor Maintenance, per prop per hour			
Lub Oil, per hour			
Hull/skirt maintenance first year, per craft			
Fees and Sundry Costs			
Bus Connections			
Insurance			
Fuel Consumption			
Based on trial consumption figures			
Total Fuel consumed, litres pa			
Fuel Cost (current in 33T deliveries)			
Port Charges (estimated)	**per pax**	£	£
OPERATING COSTS FOR YEAR without depreciation			
Hourly Costs for operating 1 craft without crew		*per hr*	£

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Proposed Craft Timetable

MONDAY - FRIDAY 25 ROUND TRIPS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 1	Craft 1	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 2	Craft 2
Depart																									
Arrive																									
	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 1	Craft 1	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 2	Craft 2
Depart																									
Arrive																									

SATURDAY - 17 ROUND TRIPS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 2	Craft 2	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1
Depart																	
Arrive																	
	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 1	Craft 2	Craft 2	Craft 2	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1	Craft 1
Depart																	
Arrive																	

SUNDAY - 10 ROUND TRIPS

	1	2	3	4	5	6	7	8	9	10
Depart	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2
Arrive										
Depart	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2	Craft 2
Arrive										

	Per day		Per week		Craft 1	Craft 2
Round Trips						
Mon-Fri						
Saturday						
Sunday						
Total trips/week						
Available seats per round trip						
Total available seats/week						
Annual available seats						

			Op hrs per	Days per	Op hrs per wk	Op hrs per yr
Hours @ sea	per weekday					
	per sat					
	per sun					
Hours on ramp	per weekday					
	per sat					
	per sun					
Total operating hours						

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	Revised Schedules												
	Senior staff & Crew costs & Training												
No. of staff	Payroll	Hours p.w	Pay per hour	Pay per annum	On costs	Cost per employee		Total costs					
	Operations manager		£	£	£	£		£					
	Captain												
	Senior staff												
	cabin crew												
	beachmasters												
	customer support												
								£					
	Senior staff training												
		Training payroll	**instructor payroll**	**craft hire**	**fuel**	**craft maintenance**	**relocation**	**advertising**	**consultant fees**	**interview costs**	**T&S**	**Total**	
	operations manager												
	captain												
	senior staff												
	Totals												
	Crew Training	**Fire Brigade**	**GNC Training**	**Total**		**Payroll**							
	Cabin Crew												
	Beachmasters												
	Customer support												
	Totals												
	Engineering costs & training												
No. of staff	**Payroll**	**Hours per week**	**Per hour**	**per annum**	**on costs**	**cost per employee**		**Total costs**					
	Foreman												
	Fitters												
	Totals												
	Engineering training	**Training payroll**	**Instructor payroll**										
	Foreman												
	Fitters												
	Other costs	**First Issue Cost**											
	Uniforms & PPE												
	Tool Allowance												
	Totals												

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9. EU Funding

9.1. If the proposed service is seeking to attract EU funding it will be necessary to prepare a proposal meeting the requirements of the fund concerned. The EU publishes its requirements in relation to various funds in the shape of calls for applications. The calls specify the type of information and justification required and the evaluation criteria used to guide the decision on whether a particular application is successful.

9.2. A good example of this approach is the Motorways of the Sea programme for the North Sea Region and extracts of the most recent call are included below to illustrate the extent and type of information required.

"What information is required in the project proposals?

*The language of the project proposals should be **English**. It should be clearly indicated which Member States and/or neighbouring countries will be addressed by this project proposal.*

The proposals should include at least the information required below, in the following order:

i. a summary of the project, including a schedule of investments and costs.

ii. an assessment of how it will improve the short sea shipping element of multimodal logistic chains in the North Sea region, including evidence. The project proposal should describe the origins and
destination of any new freight flows and potential freight corridors.

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iii. a description of the hinterland connections (road, rail, inland waterways) from the ports involved. The project proposal should also describe how the project is linked to the TEN-T Network.

iv. a detailed technical description of the project, including an indicative timetable of the planned actions and investments.

v. a detailed account of the investments in relevant port and hinterland infrastructure and in facilities (for example electronic logistics management systems, facilities to ensure and enhance safety and security, facilities to simplify administrative and customs procedures, facilities for icebreaking and dredging operations).

vi. a full financial plan. This plan should include: details of the funding sought under the TEN-T programme, a breakdown of project financing and investments and a clear description of any other funding being applied for (European, National, Regional or Institutional).

vii. an assessment of how the investments and actions will contribute to the objectives of the Motorways of the Sea concept within the TEN-T.

viii. details on the cargo potential of the connection, including indications of the catchment areas ,types of cargo to be attracted, modal shift and external cost reduction. The project proposal should include clear projections, expressed in tonne-kilometres, of the modal shift from road haulage the scheme would generate when the scheme becomes fully operational. Applicants are advised to use the European Commission's Marco Polo modal shift calculator5 for this purpose. The proposal will also provide details of the project's contribution to congestion reduction in the regions involved.

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ix. details on the current maritime connections between the ports involved (e.g. sailing schedules, technical information of the vessels deployed, etc). Projections on the expected evolution of the maritime connections between the ports involved, backed up with evidence at the disposal of the consortium members (e.g. market surveys, expression of interests of users, recent service upgrades or expressions of intents to upgrade services, regional trade statistics, traffic forecasts etc)

x. an identification of socio-economic cohesion and accessibility benefits. Examples of such benefits could include: improved frequency of services, enhanced route options, time and cost savings.

xi. a socio-economic cost-benefit analysis and environmental impact analysis of the project activities. It is strongly recommended that applicants undertake the socioeconomic cost-benefit analysis according to the HEATCO methodology and to the handbook on external cost estimation6.

xii. a statement, with supporting evidence, why the scheme will not distort the existing market in adjacent or competing corridors and/or ports. The proposal should also describe the scheme's wider benefits, beyond those that will accrue to the consortium members, and the extent to which it adds value to TEN-T programme.

xiii. a full description of the proposed management structure of the project. Complete details of all project partners including their role within the project should be included."

9.3. Section xi above recommends the use of the HEATCO methodology for socioeconomic cost benefit analysis. The objective of the HEATCO approach is to propose harmonised guidelines for project assessment for trans-national projects in Europe. This includes the provision of a consistent framework for

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monetary valuation based on the principles of welfare economics, contributing in the long run to consistency with transport costing. These guidelines have been developed within the EC funded research project HEATCO, based on latest research results on the different aspects of transport project appraisal and on an analysis of existing practice in the EU countries and Switzerland.

9.4. When carrying out a Cost-Benefit Analysis (CBA), the following general Principles are recommended in the HEATCO report:

*" **1. Appraisal as a comparative tool.** To estimate the costs and benefits of a project, two scenarios should be compared: the 'Do-Something' scenario, where the project under assessment is realised, and a 'Do-Minimum' scenario, which needs to be a realistic base case describing the future development. If there are several project alternatives, one has to create a scenario for each alternative and compare them with the 'Do minimum case'.*

***2. Decision criteria.** NPV (net present value) should be used to determine whether a project is beneficial or not. In addition, depending on the decision-making context BCR (benefit cost ratio) and RNPSS (ratio of NPV and public sector support) decision rules could be used.*

***3. The project appraisal evaluation period.** A 40 year appraisal period is recommended with residual effects being included, as a default evaluation period. Projects with a shorter lifetime should, however, use their actual length. For the comparison of potential future projects, a common final year should be determined by adding 40 years to the opening year of the last project. (Note; Subsequent publication of the UK Treasury Green Book requires 60 years)*

***4. Treatment of future risk and uncertainty.** For the assessment of (non-probabilistic) uncertainty, a sensitivity analysis or scenario technique is appropriate. If resources and data are available for probabilistic analysis, Monte Carlo simulation analysis can be undertaken.*

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5. Discounting. *It is recommended to adopt the risk premium-free rate or weighted average of the rates currently used in national transport project appraisals in the countries in which the TEN-T project is to be located. The rates should be weighted with the proportion of total project finance contributed by the country concerned.*

6. Intra-generational equity issues. *At minimum, that a "winners and losers" table should be developed, and presented alongside the results of the monetised CBA. Distributional matrices for alternative projects might be created and compared amongst each other. Additionally stakeholder analyses should be undertaken. It is recommended to use local values to assess unit benefit and cost measures.*

7. Non-market valuation techniques. *If impacts in transport project appraisals cannot be expressed in market prices, but are potentially significant in the overall appraisal, non-market techniques to estimate monetary values should be considered. The choice of technique used to value individual impacts should be dictated by the type of impact and the nature of the project. However, Willingness to Pay (WTP) measures is preferable to cost-based measures. Values should be validated against existing European estimates.*

8. Value Transfer*. Value transfer means the use of economic impact estimates from previous studies to value similar impacts in the present appraisal context. Value transfers can be used when insufficient resources for new primary studies are available.*

9. Treatment of non-monetised impacts. *At a minimum, if impacts cannot be expressed in monetary terms, they should be presented in qualitative or quantitative terms in addition to evidence on monetised impacts*

10. Treatment of indirect socio-economic effects. *If indirect effects are likely to be significant, an economic model, preferably a Spatially Computable General Equilibrium (SCGE) model, should be used. Qualitative assessment is recommended, if indirect effects cannot be modelled due to limited resources , insufficient availability of data, or lack of appropriate quantitative models or unreliable results.*

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11. Marginal Cost of Public Funds. *A marginal cost of public funds of 1, i.e. not to use any additional cost (shadow price) for public funds should be used. Instead, a cut-off value for the RNPSS of 1.5 should be used when relevant.*

12. Producer Surplus of Transport Providers. *Changes in the producer surplus generated by changed traffic volumes or by the introduction and adjustment of transport pricing regimes should be estimated.*

13. Presentation of results. *As far as possible, impacts should be expressed in both physical and monetary terms. The results of the sensitivity analysis and the non-monetised impacts should be reported together with the central monetised results."*

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iTransfer is part funded by the North Sea Region programme, part of the EU Inter-regional (Interreg) initiative. Investing in the future by working together for a sustainable and competitive region, Interreg is financed through the European Regional Development Fund (ERDF).

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