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TWELFTH AIR NAVIGATION CONFERENCE

Montréal, 19 to 30 November 2012

Agenda Item 1: Strategic issues that address the challenge of integration, interoperability and harmonization of systems in support of the concept of "One Sky" for international civil aviation
1.1: Global Air Navigation Plan (GANP) – framework for global planning

BUSINESS CASE ANALYSIS MODEL

(Presented by Canada)

1. INTRODUCTION

1.1 This Information Paper describes the process used by NAV Canada in making investment decisions for the continued improvement of Canada's air navigation system.

1.2 NAV CANADA is the private sector, non-share capital corporation that owns and operates Canada's civil air navigation system. Transport Canada is Canada's regulator for the civil air navigation system. NAV CANADA coordinates the safe and efficient movement of aircraft in Canadian domestic airspace and in international airspace assigned to Canadian control. Through its operations, NAV CANADA delivers air traffic control, flight information, weather briefings, aeronautical information, airport advisory services and electronic aids to navigation

1.3 Investments in technology, operational procedure updates and training programs are necessary for the continued improvement of the provision of Air Traffic Services. In order to ensure decision makers are aware of the costs and benefits of a proposed project and its options it is recommended that Business Case Analysis (BCA) methods are used to measure and evaluate net safety and/or efficiency benefits.

1.4 BCA is a structured method of identifying, describing and quantifying the impacts of a business decision that may take into account cost-benefit analysis, potential risks, planned mitigations and expected benefits of considered options. BCA ranges from simple to complex analysis with the level of effort determined by the size of the proposed investment.

1.5 BCAs are used to:

a) support good decision-making (i.e. lead to informed decisions); and

b) prioritize projects by using an objective framework and methodology that allows comparisons among choices or options (important when resources are scarce).

2. DISCUSSION

2.1 Scope definition

2.1.1 The initial step in BCA is the identification of the opportunity or problem for which an investment is being considered. The more specific the identification is in recognizing opportunities for improvement or performance deficiencies, the more helpful it will be guiding the formulation of options.

2.2 Define the base case and options

2.2.1 The Base Case describes the course of action which best reflects what can be achieved with minimal investment, resources, or effort over time but will still meet the “base” requirement. The Base Case option serves as a reference point against which to compare other options.

2.2.2 Feasible options need to be defined. An option may be identified by asking "Can the problem be solved to different extents?" and "Are there different ways of tackling the problem?" It is important that options be self-contained (i.e. include all of the actions necessary to make the option work) and independent (i.e. ensure that incremental benefits and costs are attributable solely to the project).

2.2.3 An analysis of all possible options is not necessary. Options should be screened to ensure that the most promising options are considered at a reasonable level of effort. The cost resources and time taken to analyze also needs to be accounted for.

2.3 Identify Benefits & Costs

2.3.1 Describe the benefits (or avoided costs) that are anticipated from any investment, and the costs required in order to realize the benefits, over the duration of the analysis period. All of the future benefits, costs, risks and mitigations associated with particular options should be identified, regardless of who accrues or incurs them.

2.3.2 Once identified, benefits, costs, risks and mitigations need to be quantified to the extent practically possible. What is possible is largely determined by the availability of data. What makes sense is determined by the level of precision required to distinguish among options.

2.3.3 The level of effort to quantify benefits and costs is a matter of judgement dependent on factors such as the nature and magnitude of the project, the expected payoff from incremental effort and the availability of relevant data.

2.4 Select Methodology & Assumptions

2.4.1 Develop and document a methodology to quantify benefits and costs of the options to be analyzed and specify the assumptions required to compare the options.

2.4.2 The analytical timeframe should coincide with the economic life of the major assets of the options being considered.

2.5 **Compute Benefits of the Options**

2.5.1 Benefits are primarily the intended effects of a project. In the evaluation of Air Navigation System projects, the three main types of benefits are:

a) safety;

b) efficiency to users and operators of ATM services; and/or

c) avoided costs as well as productivity gains.

2.5.2 Some benefits are conditional upon separate decisions and actions that are beyond the scope of the BCA in question. Unless there is a high degree of confidence that such benefits will be achieved, they should be clearly identified as conditional benefits. Conditional benefits should not be included in the calculation of the net benefit.

2.5.3 Unquantified benefits and other effects have to be recognized and taken into account.

2.5.4 Uncertainties should be reported and assessed. The approach is to recognize all uncertainties explicitly and to gauge their impact on the choice of an option systematically.

2.6 **Compute Costs of the Options.**

2.6.1 Project-related costs are the costs to plan and implement a project, as well as to operate and maintain it throughout its useful life. There are three main principles relevant to the measurement of project-related costs:

a) all costs that differ among the options should be included, no matter who incurs them;

b) costs solely attributable to a project must be included; and

c) costs should reflect opportunity costs.

2.7 **Sensitivity Analysis**

2.7.1 Sensitivity analysis tests the results of a BCA under different assumptions for key factors in the analysis:

a) if sensitivity analysis indicates that the outcome of the analysis would remain the same over a broad range of values for key factors (i.e., the analysis is robust), a decision on the preferred option can be made with relative confidence; or

b) if sensitivity analysis indicates that another option would become more cost-beneficial under certain circumstances, a judgement would be required on the likelihood that those conditions would occur.

2.8 **Compute Net Benefits**

2.8.1 Compare the quantified benefits and costs of each option to determine its net benefit and payback period.

2.9 **Establish Conclusion/Recommendation to the BCA.**

2.9.1 Generally the option that provides the greatest net benefit or the shortest payback period is recommended. Other factors such as political and environmental elements may supersede the economic advantages of options. Communicating the methodology, assumptions, risks, and results via a formal report provides valuable information to support good decision making.

3. CONCLUSION

3.1 BCA is useful in planning and decision-making as it provides a common framework in which all of the important effects of investment choices can be made visible and, to the extent possible, quantified. It is a key tool in the quest for value for money.

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