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Manual on Economic and Financial Analyses for Aviation Infrastructure Projects

First Edition, 2022



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for Aviation Infrastructure Projects

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AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue*; the Catalogue and its supplements are available on the ICAO website at www.icao.int. The space below is provided to keep a record of such amendments.

RECORD OF AMENDMENTS AND CORRIGENDA

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FOREWORD

ORIGIN AND OBJECTIVE

At the Fifth Joint Meeting of the Airport Economics Panel (AEP) and the Air Navigation Services Economics Panel (ANSEP) (AEP-ANSEP/5), held in May 2015, a working group was established to develop guidance material incorporating recommendations made by the Multi-disciplinary working group on the economic challenges linked to the implementation of the aviation system block upgrades (MDWG-ASBU) on: a) cost-benefit analysis, business case study and economic impact analysis, and b) financing scheme (recommendation AEP-ANSEP/5-1/1 refers). The Sixth Joint Meeting (AEP-ANSEP/6), held in May 2017, further recommended to develop a standalone guidance document on economic and financial analyses. In December 2021, the guidance document was adopted by the Eighth Joint Meeting (AEP-ANSEP/8).

The objective of this manual is to provide practical guidance to States, airport managing and operating entities, air navigation services providers and designated charging and regulatory authorities in conducting analysis to support investments decisions in aviation infrastructure.

SCOPE

The manual provides an overview on how to conduct economic and financial analyses for aviation infrastructure projects, with a particular focus on cost-benefit analysis. It takes into account the existing guidance on cost-benefit analysis, business case and economic impact analysis in the *Airport Economics Manual* (Doc 9562) and the *Manual on Air Navigation Services Economics* (Doc 9161), and aligns terminologies with a view to achieving a common understanding of these concepts. Supplementary material is provided in the appendix and provides concrete examples and references in conducting such analyses.

The guidance in this manual is presented in three chapters. Chapter 1 provides definitions on cost-benefit analysis, business case, economic impact analysis and cost-effectiveness analysis, and explains the difference between each other. Chapter 2 provides guidance on making decisions on when to conduct a cost-benefit analysis or business case. Chapter 3 describes the scope of a cost-benefit analysis and the process in conducting the analysis by steps. References to existing guidance and its application to specific aviation investment projects are included in the appendices, which will be reviewed and updated periodically.

SOURCES

This manual has been developed with the assistance of a group of experts on airport economics and on air navigation services economics. The principal sources were Docs 9562 and 9161. Additional source documents include reports, studies and other guidance material available from States and other organizations.

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GLOSSARY

LIST OF ACRONYMS AND ABBREVIATIONS

ADS	Automatic dependent surveillance
AEP	Airport Economics Panel
ANSEP	Air Navigation Services Economics Panel
ANSP	Air navigation services provider
ATM	Air traffic management
ATM/CNS	Air traffic management/communication, navigation, surveillance
ATS	Air traffic service
BCR	Benefit/cost ratio
CBA	Cost-benefit analysis
CEA	Cost-effectiveness analysis
ECAC	European Civil Aviation Conference
EIA	Economic impact analysis
GDP	Gross domestic product
IRR	Internal rate of return
KPA	Key performance area
NPV	Net present value
R&D	Research and development

Chapter 1

COST-BENEFIT ANALYSIS, BUSINESS CASE, ECONOMIC IMPACT ANALYSIS AND COST-EFFECTIVENESS ANALYSIS

1.1 Organizations are often faced with decisions on how best to pursue their objectives, especially on investment decisions. They use evaluation techniques that focus on the options, and search for the one that maximizes net benefits. Every major investment decision taken by a State, an airport or a provider of air navigation services should be supported by analyses to demonstrate costs and benefits accruing from investment in infrastructure to service providers, users and, as appropriate, the wider community. Consultation with users should assist States and service providers with their major investment decisions. With regard to analyses undertaken, commonality in approach within a State or region would be desirable.

1.2 Economic and financial analyses of major aviation infrastructure projects are becoming an increasingly important component of proposals seeking government funding or private financing. These activities are crucial given that airports or air navigation service providers can make an important contribution to a State's economy by generating employment and other economic activity, not only at the airport and the surrounding community, but also for the country as a whole.

1.3 There are various types of evaluation techniques that organizations and States can use depending on what type of analysis they want to include. This manual highlights four of the more commonly used evaluation techniques: cost-benefit analysis (CBA), business case, economic impact analysis (EIA) and cost-effectiveness analysis (CEA). Given the prominence that CBA plays in the evaluation process of public sector investment projects, the primary focus of this manual will be on providing a comprehensive overview of CBA.

1.4 It is important to note that these evaluation techniques are all tools that support planning and decision-making. In many instances, these tools can be used in concert with each other to form a broader strategic vision of the project, program or policy being evaluated. A negative result from any of these evaluation techniques should not necessarily rule out making the investment.

1.1 WHAT IS A COST-BENEFIT ANALYSIS?

1.1.1 A CBA (also known as benefit-cost analysis (BCA)) aims to identify the investment option that best conforms to the economic goal of maximizing net societal benefits. It examines all costs and benefits related to the production and consumption of an output, whether the costs and benefits are borne by the producer, the consumer or a third party. As the CBA takes into account both public and private benefits and costs of a project, it tends to be more appropriate in cases where projects are publicly funded.

1.1.2 The ultimate objective of a CBA is to determine if a project is cost-beneficial or to assess which option yields the greatest net benefits by comparing the benefits and costs to all parties involved. Therefore, a CBA objectively identifies all costs and benefits, and where possible converts them into the common monetary units of measures. It also takes full account of the times at which the costs are paid and benefits accrue. A CBA obviously goes well beyond a financial analysis that focuses on the project's financial accounts and cash flows.