Final OSED for Madrid TMA (Annex - Cost Benefit Analysis)

Document information	
Project title	Final OSED for Madrid TMA (Annex: Cost Benefit Analysis)
Project N°	05.07.04.
Project Manager	AENA
Deliverable	Title of the document
Deliverable ID	03
Edition	00.00.01
Template version	02.00.01

Task contributors
AENA

Please complete the advanced properties of the document

Abstract

The following document contains the environmental assessment as required by the validation plan of WP5.7.4. and the referenced deliverable Final OSED for Madrid TMA (D03)

Authoring & Approval

Prepared By		
Name & company	Position / Title	Date
<Name> / <company>	<Position / Title>	<Date>
[redacted] (AENA)	[redacted]	23/03/2012

Reviewed By		
Name & company	Position / Title	Date
<Name> / <company>	<Position / Title>	<Date>
[redacted] (INECO)	[redacted]	03/04/2012

Approved By		
Name & company	Position / Title	Date
<Name> / <company>	<Position / Title>	<Date>
[redacted] (AENA)	[redacted]	03/04/2012

Document History

Edition	Date	Status	Author	Justification
00.00.01	03/04/2012	Final	[redacted]	

Intellectual Property Rights (foreground)

The foreground of this deliverable is owned by the SJU.

Table of Contents

Executive summary

The following document contains the environmental assessment as required by the validation plan of WP5.7.4. and the referenced deliverable Final OSED for Madrid TMA (D03)

1 Introduction

1.1 Purpose of the document

The purpose of this document is to resent the cost benefit analysis within 5.74. Project and the results raised from such analysis following the methodology here described

1.2 Intended readership

5.2 - Consolidation of Operational Concept Definition and Validation

5.0. - Global Co-ordination and Management

16.6.6. - Business Case Maintenance, support and coordination

1.3 Inputs from other projects

No inputs from 16.6.6. or any other projects.

1.4 Acronyms and Terminology

To be completed if needed

Term	Definition
ATM:	Air Traffic Management
E-ATMS	European Air Traffic Management System
SESAR	Single European Sky ATM Research Programme
SJU	SESAR Joint Undertaking (Agency of the European Commission)
SJU Work Programme	The programme which addresses all activities of the SESAR Joint Undertaking Agency.
SESAR Programme	The programme which defines the Research and Development activities and Projects for the SJU.

2 <Cost Benefit Analysis>

2.1 <Cost Benefit Methodology>

The Cost-Benefit study presents three main phases where a number of steps can be allocated:

- A first phase where definition and hypothesis of the project are undertaken. It is necessary to examine needs, consider constraints and state the point of view from which costs and benefits will be assessed (base line).
- Identification of affected areas and classification of variables from an economic point of view, i.e. setting out the costs and benefits over time. Identification is done according to company's accountancy, and the estimation may be carried out by amounts of money and milestones or by indicators and unit costs. It is necessary to analyze incremental effects respect to a base line and gather data about costs and benefits, expressing them in a valid standard unit of measurement (Euros).
- The last phase consists of model building and result analysis, conducting a deterministic estimation of net present value (NPV) and its deterministic model and a sensitivity analysis to determine which variables appear to have the most influence on the NPV.

The base line is an alternative situation in which the system continues at present situation, i.e. it consists of doing all the required activities to keep operative the present system, extending it up to its theoretical capability.

Definition and hypothesis Phase:

The recommended steps in this phase are:

- Project definition formulating objectives and targets for instance increasing capacity or reducing costs. Moreover it is necessary to set the period of project evaluation and in the case of several alternatives in the project the same period should be considered.
- Assumed hypothesis to establish the study. There may be hypothesis for the complete project as well for each alternative.
- Identification of alternatives or different possibilities of executing a project.

According to technical features, the investments that may arise due to project are allocated to the following areas:

- Tools
- Infrastructure
- Navigation
- Surveillance
- Communication
- Aeronautical Services
- Automation
- Information Technology
- Headquarters

Identification and Classification Phase:

It is necessary to identify the variations in benefits, the positive results when undertaking an investment and costs, the consumption of resources to carry out a project.

- Identification of benefits and costs

- Estimation of benefits and costs

At this point some differences may be noted between EUROCONTROL's general view of cost-benefit analysis as presented in meetings and present analysis.
EUROCONTROL's general structure of costs in a project of investment is identified according to the project phases:
R+D Research and Development: from the beginning of the project, some costs associated to improvements or new services and research arises.
Processing: in this period project presentation and approval of the proposal are carry out, as well as drafting and processing of specifications.
Project Implementation: this phase covers time from contract signing to the point the whole new system is in operation. It could be divided into Infrastructure, Equipment and Transition periods.
Operating phase: it covers from the point new system is commissioned as the main system to the end of the study. Replacement of some elements could be required in this phase. In general benefits begin at commissioning.
On the contrary, in our study the Cost-Benefit Analysis is tackled in an company-management approach, the core business is highlighted and thus company's costs relating to technical and human resources necessary to undertake the project such as Amortization Cost or Staff Cost are drawn firstly. Other operating costs associated to service provision are considered as Exploitation costs.
Models are considered for the main stakeholders reflecting the project analysis: ANS Provider and Airline Users. Environment is not dealt with due the difficulty in reaching a quantitative result.
The cost-benefit analysis is based on the income and costs accounts implied in a particular project and not on the moment and phase where all these incomes and costs appear.

Modeling and Analysis Phase:

- Economic evaluation of alternatives. Benefits and costs must be allocated in time.
- Analysis and interpretation of results. The economic result could be assessed by some criteria as well as deterministic and probabilistic analysis:
  NPV (net present value):
  Benefit-Cost ratio
  IRR (internal return ratio)
  Pay-back period.

P-RNAV case:

In particular, as PRNAV project is considered, the main costs for ANSPs and Airlines models from a EUROCONTROL point of view are:
ANSPs:

- Pre-implementation Costs, which contain Training costs in respect of PRNAV procedures for ATCOs and Administrative costs arisen in design of new operating procedures and ATCO certification.
- Implementation and commissioning costs such as coexistence between new and out-mode systems.
- Calibrating costs as testing costs.

Airlines:

- Training costs in respect of PRNAV procedures for pilots.
- Management costs for the project
- Administrative costs due to new operating procedures.
- Implementation and commissioning costs due to new equipment required for PRNAV operations.

The study comprises two main models that reflect the project analysis for the two main stakeholders: ANS Provider and Airline Users.

Two main areas of investment might be considered in this project for ANS Provider model: Navigation and Automation. Navigation Cost contains investment due to new requirement in equipment (i.e. DME/DME) while the investment due to new technologies (i.e. SACTA evolutions) is considered under Automation Cost.
Aligned with these investments, there are two Amortization Costs: in Navigation and in Automation derived from the loss of value link to the pass of time, technical progress and obsolescence.
Costs that arise from the operation of the system can be divided into Staff Cost and Exploitation Cost. Staff Cost has been extracted from exploitation costs to receive a differentiated study.
Staff Cost can be distributed into Service Provision Costs due to the operation of the new system respect to base line and Transition Costs, due to training to new system.
As far as Exploitation Cost is concerned two types of costs can be found: Administrative Cost including costs due to Certification and Calibration amongst others and Maintenance Cost.
Benefits are the difference between global income for ANSP and global cost. It is assumed that there are no incremental incomes due to project.
In a parallel way, Airlines model presents two main types of Amortization Cost: Training Cost and Exploitation Cost that reflects the effectiveness of the system performance. Exploitation Cost contains the effects of the inefficiency in delay, tactical and strategically, inefficiency in flight, accommodated diversions and cancelations cost.
Users incomes mainly come from incremental accommodated demand. Benefits are the difference between global income and global cost for User.

3 <Results>

3.1 <Project>

1. Project	Implementation of PRNAV procedures in Madrid TMA

Geographical Area

FIR	_
TMA	X
Airport	_

Description

Implementation of PRNAV procedures (SID and STAR) in Madrid TMA

Service Provided

Airspace Design	X
Capacity/Demand Management	_
ATC (Route/Approach/Airport)	_
CNS	_
AIS	_
Others	_

Alternatives

Alternative 1

PRNAV Procedures in Madrid TMA

Alternative 2

Conventional Procedures in Madrid TMA

Alternative 3

_

Key Performance Area

Safety	X
Cost_Efficiency	X
Capacity	X
Productivity	X
Flight Efficiency	X
Environment	X

Investment

Infrastructure	_
Navigation	_
Communication	_
Surveillance	_
Automation	_
Tool	_
Others	_

Remarks

Alternative 1 is compared with regard to Alternative 2 (incremental, no results for Alternative 2)

Calendar

Current Year	2012
Final Year	2021
Operational Year	2012

Units

Dirección de Operaciones
División de Planificación y Control. Gabinete N.A.

3.2 <Assumptions>

2. Assumptions
Economic Assumptions
Service Provider model is based on "Cost Recovery Mechanism", that is, charges are calculated in order to allow for annual cost recovery adapted to regulation EU 691/2010 and 1191/2010.
The models calculate cash-flows using current year prices (real value or without inflation)
For the effect of NPV´s calculation, it has been considered a discount factor of 8% on the Service Providers´ model, 16% on the Airlines´ Model and 8% on the Externalities´ model
Cash flows are not increased with financial charges so as to separate investments from financial decisions.
In order to calculate Service Costs, Depreciation model´s starting point has been considered to be the moment when the system begins to operate, as it is when airlines start profiting from it.
Net Present Value is the sum of the discounted annual cash flow
Economic impact on Safety has not been assesed, despite the fact that these concepts are otherwise crucial to comply with.
Unit Cots have been calculated with regard to the current situation
In order to interpret values of the Net Present Value (NPV) of the projects, it should be remarked that the Cost-Benefit Analysis is calculated with incremental values and therefore NPV in positive means "additional benefits" while NPV in negative means "additional costs".
Operational Assumptions
Capacity is restricted as airline´s profitability remains null, that is, while delay costs remain higher than net benefits per flight. Therefore there is a maximum rate of delay@gate
In relation with the overall minutes of delay @ gate, a proportion corresponds to delays higher than 15 minutes and the rest associated with delays lower than 15 minutes.
An en-route average speed of 450NM/h, calibration flight speed of 170 NM/h and a landing speed of 280NMN/h are used
It has been considered that annual Nautical Miles savings and annual CO2 savings change with IFR movements´ variation
Airspace Design changes could generate an incremental on CTA working hours (positive or negative)
Optimal level of flight is the most frequent cruising level during one year (according to traffic samples) for each airship´s model, for each airspace´s user and for each city-pair studied. Any airship not flying at its optimal level has additional fuel consumption.
As any equipment of the current Air Navigation System approaches end of working life, an assesment of the new system thechnology needs to be done
Particular Assumptions
There is no need of aditional investment for Aena in the navigation system to support the PRNAV procedures in TMA Madid, not in Automation due to the changes in the airspace design
There is no need of additional on board equipment investemet for the Airspace Users
Flight leves don't change with the new procedures, so the flight efficiency it is not affected
CTA working hours decreased by the project because although the sectorization change (2 to 3 sectors), the sectors have less complexity and therefore the hours used to manage them decrease (4 to 3 CTAs)
Sector Capacity for the TMA Madrid increases due to the new PRNAV procedures in TMA Madrid, so the ATC Capacity delay in the Madrid TMA is reduced to cero
Flight time increased from 21,60 minutes with current arrival procedures to 22,86 minutes with PRNAV arrival procedures in the Madrid TMA, and flight time decreased from 7,5 minutes with current departures procedures to 6 minutes with PRNAV departure procedures in the Madrid TMA
Due to the project, tactical on board delay disappears (3,2 flights per hour during six hours per day and 365 per annum with 3,75 minutes of tactical on board delay per flight)

3.3 <Economic Evaluation>

3. Economic Evaluation

NET PRESENT VALUE

	Alternative 1	Alternative 2	Alternative 3
ANSP	7.493.080 €	- €	- €
Airspace Users	51.590.251 €	- €	- €
Externalities	46.669 €	- €	- €

Comments

The studied alternative means benefits for all the Stakehoders: ANSP, Airspace Users and Externalities

COST BENEFIT RATIO

	Alternative 1	Alternative 2	Alternative 3
ANSP	<1	<1	<1
Airspace Users	<1	<1	<1
Externalities	<1	<1	<1

Comments

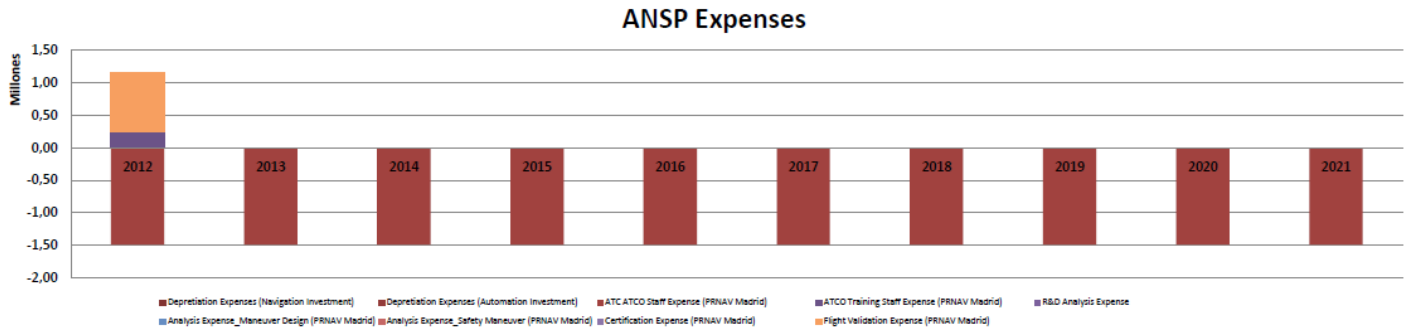
_

3.4 <Time Series ANSP Investment>

4. Time Series

Alternative 1 — *PRNAV Procedures in Madrid TMA*

ANSP (€)	NPV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
INVESTMENT	-	-	-	-	-	-	-	-	-	-	-
Navigation Investment	-	-	-	-	-	-	-	-	-	-	-
Automation Investment	-	-	-	-	-	-	-	-	-	-	-
Depretiation Expenses (INVESTMENT)	-	-	-	-	-	-	-	-	-	-	-
Depretiation Expenses (Navigation Investment)	-	-	-	-	-	-	-	-	-	-	-
Depretiation Expenses (Automation Investment)	-	-	-	-	-	-	-	-	-	-	-
Staff Expenses	-8.326.413	-1.239.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200
ATC ATCO Staff Expense (PRNAV Madrid)	-8.557.895	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200
ATCO Training Staff Expense (PRNAV Madrid)	231.481	250.000	-	-	-	-	-	-	-	-	-
Operational Expenses	833.333	900.000	-	-	-	-	-	-	-	-	-
R&D Analysis Expense	-	-	-	-	-	-	-	-	-	-	-
Analysis Expense_Maneuver Design (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
Analysis Expense_Safety Maneuver (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
Certification Expense (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
Flight Validation Expense (PRNAV Madrid)	833.333	900.000	-	-	-	-	-	-	-	-	-
INCOME	-	-	-	-	-	-	-	-	-	-	-
TOTAL EXPENSES (€)	-7.493.080	-339.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200	-1.489.200
RESULT (€)	**7.493.080**	**339.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**	**1.489.200**
Service Costs (€)	**-7.493.080**	**-339.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**

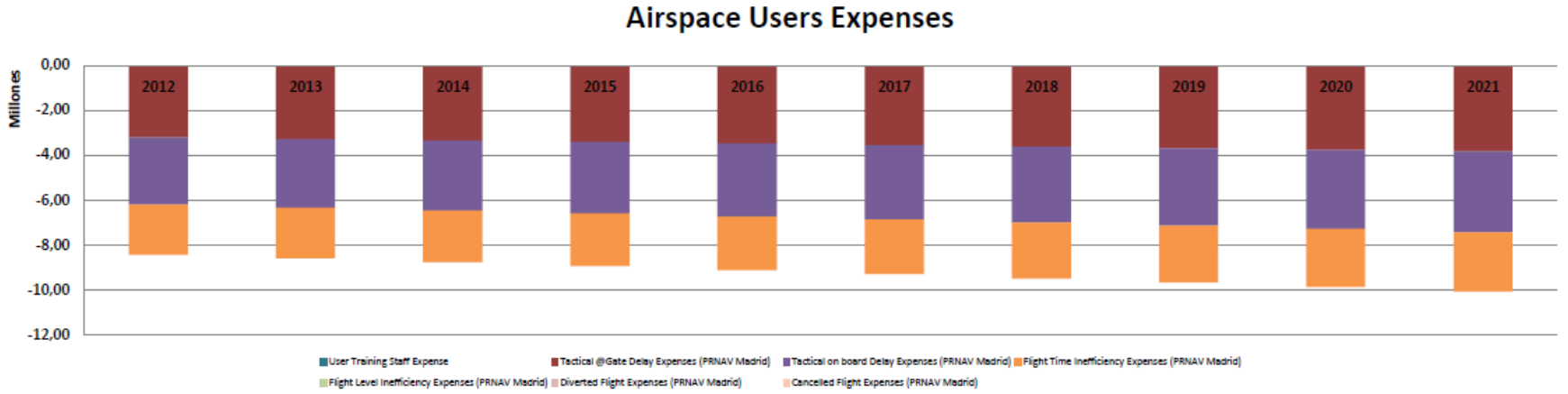


3.5 <Time Series AUs Investment>

4. Time Series

Alternative 1 ***PRNAV Procedures in Madrid TMA***

AIRSPACE USERS (€)	NPV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
INVESTMENT	-	-	-	-	-	-	-	-	-	-	-
Depretiation Expenses (INVESTMENT)	-	-	-	-	-	-	-	-	-	-	-
Operational Expenses	-51.590.251	-8.434.629	-8.603.321	-8.775.388	-8.950.895	-9.129.913	-9.312.512	-9.498.762	-9.688.737	-9.882.512	-10.080.162
User Training Staff Expense	-	-	-	-	-	-	-	-	-	-	-
Tactical @Gate Delay Expenses (PRNAV Madrid)	-19.699.814	-3.220.775	-3.285.191	-3.350.895	-3.417.913	-3.486.271	-3.555.996	-3.627.116	-3.699.659	-3.773.652	-3.849.125
Tactical on board Delay Expenses (PRNAV Madrid)	-18.363.067	-3.002.227	-3.062.272	-3.123.517	-3.185.988	-3.249.707	-3.314.701	-3.380.995	-3.448.615	-3.517.588	-3.587.939
Flight Time Inefficiency Expenses (PRNAV Madrid)	-13.527.370	-2.211.626	-2.255.859	-2.300.976	-2.346.995	-2.393.935	-2.441.814	-2.490.650	-2.540.463	-2.591.272	-2.643.098
Flight Level Inefficiency Expenses (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
Diverted Flight Expenses (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
Cancelled Flight Expenses (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-	-
INCOME	-	-	-	-	-	-	-	-	-	-	-
TOTAL EXPENSES (€)	-51.590.251	-8.434.629	-8.603.321	-8.775.388	-8.950.895	-9.129.913	-9.312.512	-9.498.762	-9.688.737	-9.882.512	-10.080.162
RESULT (€)	**51.590.251**	**8.434.629**	**8.603.321**	**8.775.388**	**8.950.895**	**9.129.913**	**9.312.512**	**9.498.762**	**9.688.737**	**9.882.512**	**10.080.162**
Service Costs (€)	**-7.493.080**	**-339.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**	**-1.489.200**

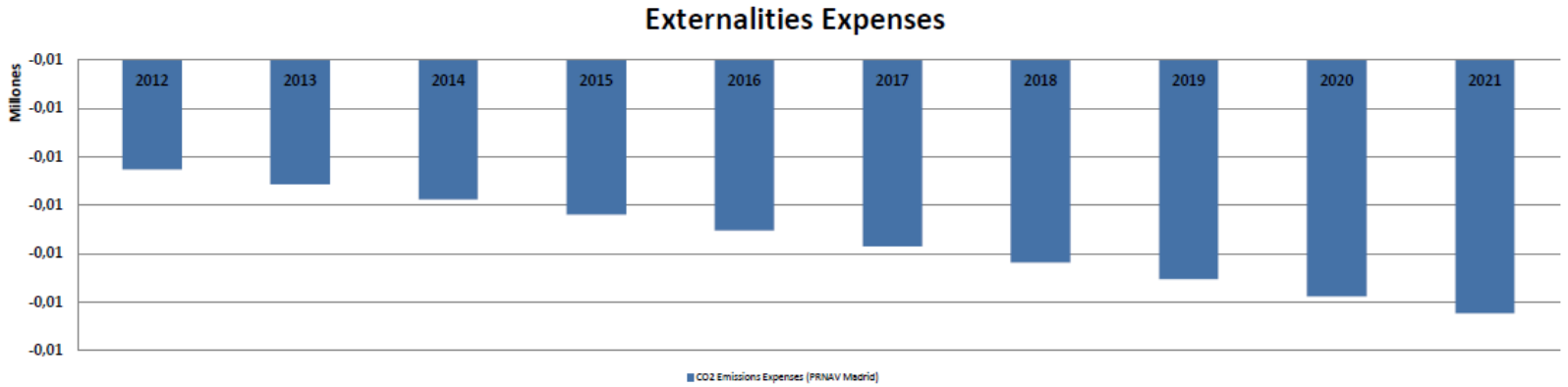


3.6 <Time Series Externalities Investment>

4. Time Series

Alternative 1 ***PRNAV Procedures in Madrid TMA***

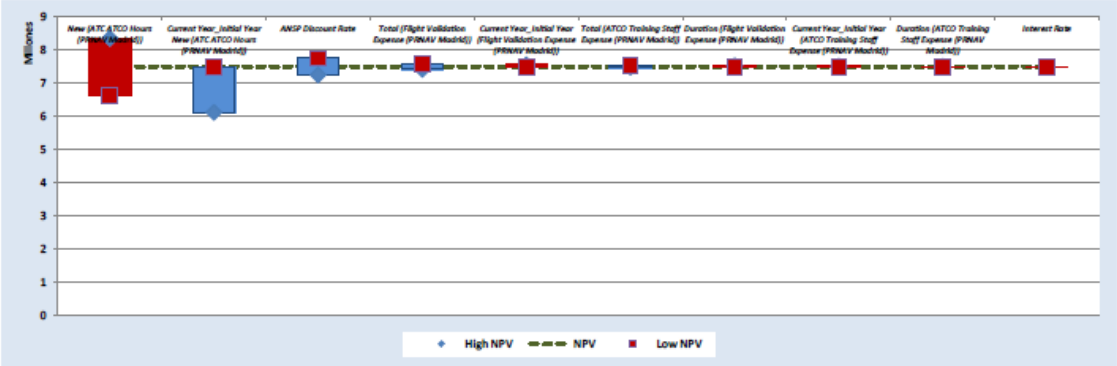
EXTERNALITIES (€)	NPV	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Operational Expenses	- 46.669	- 7.630	- 7.783	- 7.938	- 8.097	- 8.259	- 8.424	- 8.593	- 8.765	- 8.940	- 9.119
CO2 Emissions Expenses (PRNAV Madrid)	- 46.669	- 7.630	- 7.783	- 7.938	- 8.097	- 8.259	- 8.424	- 8.593	- 8.765	- 8.940	- 9.119
TOTAL EXPENSES (€)	- 46.669	- 7.630	- 7.783	- 7.938	- 8.097	- 8.259	- 8.424	- 8.593	- 8.765	- 8.940	- 9.119
RESULT (€)	46.669	7.630	7.783	7.938	8.097	8.259	8.424	8.593	8.765	8.940	9.119



3.7 <Deterministic Analysis>

5. Deterministic Analysis

ANSP. Alternative 1 **PRNAV Procedures in Madrid TMA**

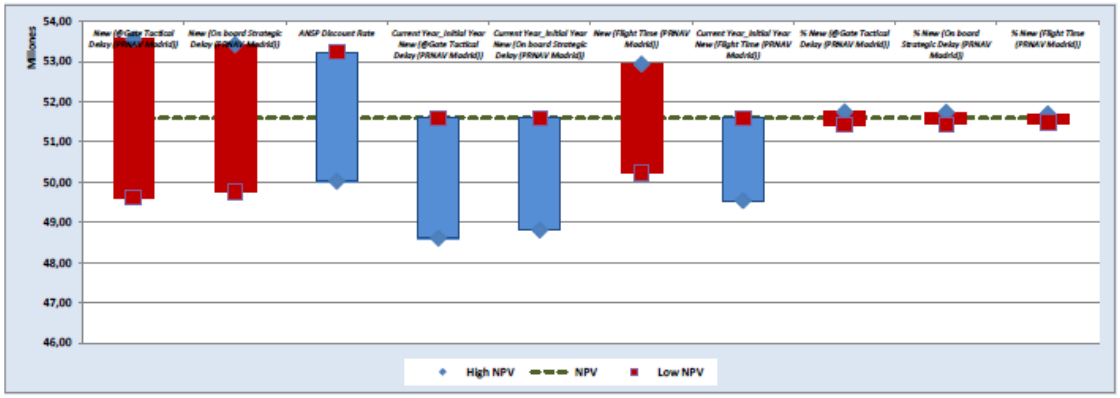


Comments

The assessment of the relative importance of variables:

1. New (ATC ATCO Hours (PRNAV Madrid))
2. Current Year_Initial Year New (ATC ATCO Hours (PRNAV
3. ANSP Discount Rate
4. Total (Flight Validation Expense (PRNAV Madrid))
5. Current Year_Initial Year (Flight Validation Expense (PRNAV

Airspace Users. Alternative 1 **PRNAV Procedures in Madrid TMA**



Comments

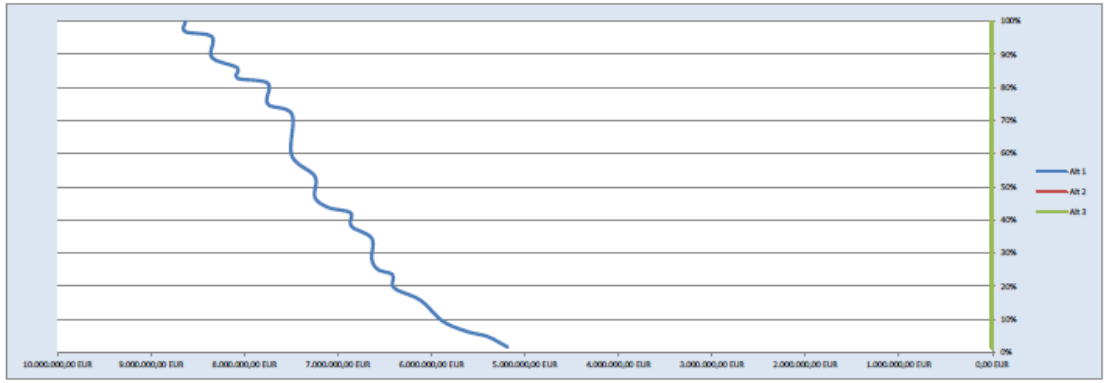
The assessment of the relative importance of variables:

1. New (@Gate Tactical Delay (PRNAV Madrid))
2. New (On board Strategic Delay (PRNAV Madrid))
3. ANSP Discount Rate
4. Current Year_Initial Year New (@Gate Tactical Delay (PRNAV
5. Current Year_Initial Year New (On board Strategic Delay

3.8 <Probabilistic Analysis>

6. Probabilistic Analysis

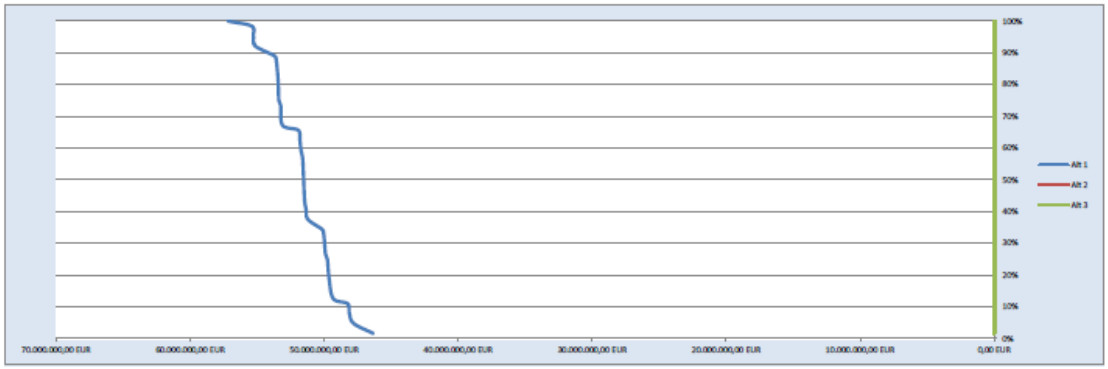
ANSP



Comments

On the side of ANSP profitability, the risk level is low because a variability in the main variables implies a few variability in the economic result

Airspace Users



Comments

On the side of Arilines profitability, the risk level is low because a variability in the main variables implies a few variability in the economic result

3.9 <Conclusions>

Conclusions
The main parameter to take into account in the implementation of the PRNAV in Madrid TMA on the ANSP side is the decrease in ATCO ATC hours. Others are the calibration costs and training costs and the starting year of the project
Airspace Users will have cost savings because of the implementation of PRNAV procedures in Madrid TMA in terms of delay (tactical @ gate and tactical on board delay) due to the improvement on quality of service in the capacity area. On the flight efficiency area there will be a reduction in terms of flight time (incresae in nautical miles on the arrival procedures but decrease on departures procedures), so the Airspace User will have cost savings. Besides the en route charge will decrease because of the effect of ATCO ATC hour
Externalities will have costs savings because the implementation of PRNAV procedures in Madrid TMA in terms of kg of CO2 on the environmental area

Annex 1 <Operational Indicators>

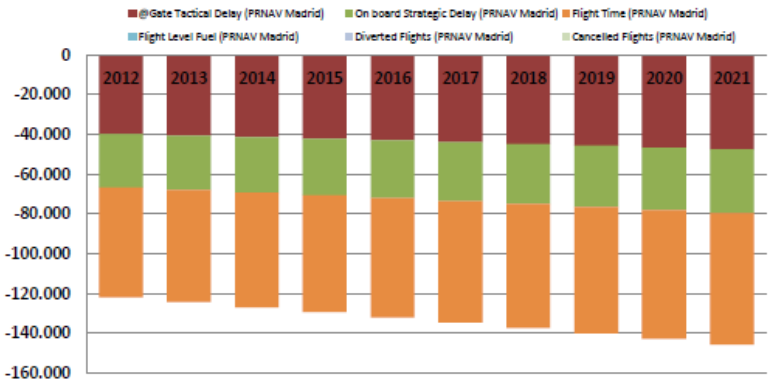
ANNEX I. Operational Indicators

Alternative 1 — **PRNAV Procedures in Madrid TMA**

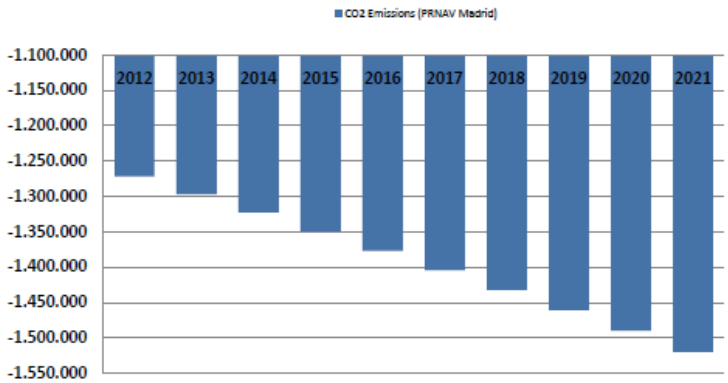
AIRSPACE USERS (min)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
@Gate Tactical Delay (PRNAV Madrid)	- 39.763	- 40.558	- 41.369	- 42.196	- 43.040	- 43.901	- 44.779	- 45.675	- 46.588	- 47.520
On board Strategic Delay (PRNAV Madrid)	- 26.806	- 27.342	- 27.889	- 28.446	- 29.015	- 29.596	- 30.187	- 30.791	- 31.407	- 32.035
Flight Time (PRNAV Madrid)	- 55.291	- 56.396	- 57.524	- 58.675	- 59.848	- 61.045	- 62.266	- 63.512	- 64.782	- 66.077
Flight Level Fuel (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-
Diverted Flights (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-
Cancelled Flights (PRNAV Madrid)	-	-	-	-	-	-	-	-	-	-

EXTERNALITIES (kg)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
CO2 Emissions (PRNAV Madrid)	-1.271.685	-1.297.119	-1.323.061	-1.349.522	-1.376.513	-1.404.043	-1.432.124	-1.460.766	-1.489.982	-1.519.781

Operational Indicators. Airspace Users



Operational Indicators. Externalities



Annex 1 <Key Input Data>

ANNEX II. Key input data

EXPENSE	Alternative 1			Alternative 2			Alternative 3		
	TOTAL (€)	DURATION (years)	Milestone (years)	TOTAL (€)	DURATION (years)	Milestone (years)	TOTAL (€)	DURATION (years)	Milestone (years)
ATCO Training Staff Expense (PRNAV Madrid)	250.000	1	0	0	0	0	0	0	0
R&D Analysis Expense	0	0	0	0	0	0	0	0	0
Analysis Expense_Maneuver Design (PRNAV Madrid)	0	0	0	0	0	0	0	0	0
Analysis Expense_Safety Maneuver (PRNAV Madrid)	0	0	0	0	0	0	0	0	0
Certification Expense (PRNAV Madrid)	0	0	0	0	0	0	0	0	0
Flight Validation Expense (PRNAV Madrid)	900.000	1	0	0	0	0	0	0	0

EXPENSE/INDICATORS	Alternative 1			Alternative 2			Alternative 3		
	Baseline	New	Milestone (years)	Baseline	New	Milestone (years)	Baseline	New	Milestone (years)
ATC ATCO Hours (PRNAV Madrid) (Hours)	0	-8.760	0	0	0	0	0	0	0
@Gate Tactical Delay (PRNAV Madrid) (min)	0	-38.983	0	0	0	0	0	0	0
On board Strategic Delay (PRNAV Madrid) (min)	0	-26.280	0	0	0	0	0	0	0
Flight Time (PRNAV Madrid) (min)	0	-54.207	0	0	0	0	0	0	0
Flight Level Fuel (PRNAV Madrid) (Tm)	0	0	0	0	0	0	0	0	0
Diverted Flights (PRNAV Madrid) (Flights)	0	0	0	0	0	0	0	0	0
Cancelled Flights (PRNAV Madrid) (Flights)	0	0	0	0	0	0	0	0	0
CO2 Emissions (PRNAV Madrid) (kg)	0	-1.246.750	0	0	0	0	0	0	0

UNIT COST	Value	Unit
Tactical @Gate Delay Expenses	81,00	€/min
Strategic @Gate Delay Expenses	26,00	€/min
Tactical on board Delay Expenses	112,00	€/min
Strategic on board Delay Expenses	60,00	€/min
Flight Time Inefficiency Expenses	40,00	€/min
Flight Level Inefficiency Expenses	740,00	€/Tm
Diverted Flight Expenses	7.000,00	€/Flights
Cancelled Flight Expenses	20.000,00	€/Flights
Acommodated Demand Income	700,00	€/Flights
CO2 Emissions Expenses	0,01	€/kg
H2O Emissions Expenses	0,01	€/kg
NOX Emissions Expenses	0,00	€/kg
Spain Continental Route Income	71,84	€/Unit
Canary Island Route Income	58,82	€/Unit
Approach I Income	17,10	€/Unit
Approach II Income	15,40	€/Unit
Approach III Income	12,80	€/Unit

- **END OF DOCUMENT -**