



# Software de caso de negocio

## ~Una breve descripción~

CHAOUKI MUSTAPHA, Economista,  
Organización de Aviación Civil Internacional

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Taller sobre el desarrollo de un caso de negocio  
para la implantación de sistemas CNS/ATM  
(Lima, 10 – 14 Noviembre de 2008)

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### Reseña

- ¿Qué es esto?
- Funciones principales
- Componentes principales
- Fortalezas y debilidades
- Resumen

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## ¿Qué es esto?

- Base de datos CNS/ATM y sistema computarizado de análisis financiero (DFACS)
  - Un software **analítico** e interactivo,
  - incluyendo un componente de **base de datos**.


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## Funciones principales

- Permite a los proveedores de servicios de navegación aérea y a los usuarios del espacio aéreo a **construir, evaluar y comparar opciones** o **escenarios** alternativos para la implantación de sistemas CNS/ATM

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## Otras funciones

- **Mantener bases de datos:**
  - **Locaciones geográficas**
  - **Equipo de servicios de navegación aérea**
  - **Flota y aviónica de los usuarios del espacio aéreo**

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## Componentes principales

- **Base de datos**
  - **Datos geográficos**
    - Referencia sobre regiones
    - Referencia sobre Estados
    - Referencia sobre locaciones
  - **Equipo de servicios de navegación aérea**
    - Referencia sobre equipo con tecnología convencional
    - Referencia sobre equipos con nueva tecnología
    - Base de datos de equipo por locación
  - **Usuarios del espacio aéreo**
    - Tipos de aeronave
    - Aviónica


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## Componentes principales

- Escenarios
  - Administración del escenario
    - Creación del escenario
    - Copia de un escenario
  - Análisis del escenario
    - Rentabilidad
    - Flujos de caja
  - Comparación de escenario
    - Tabla de resumen

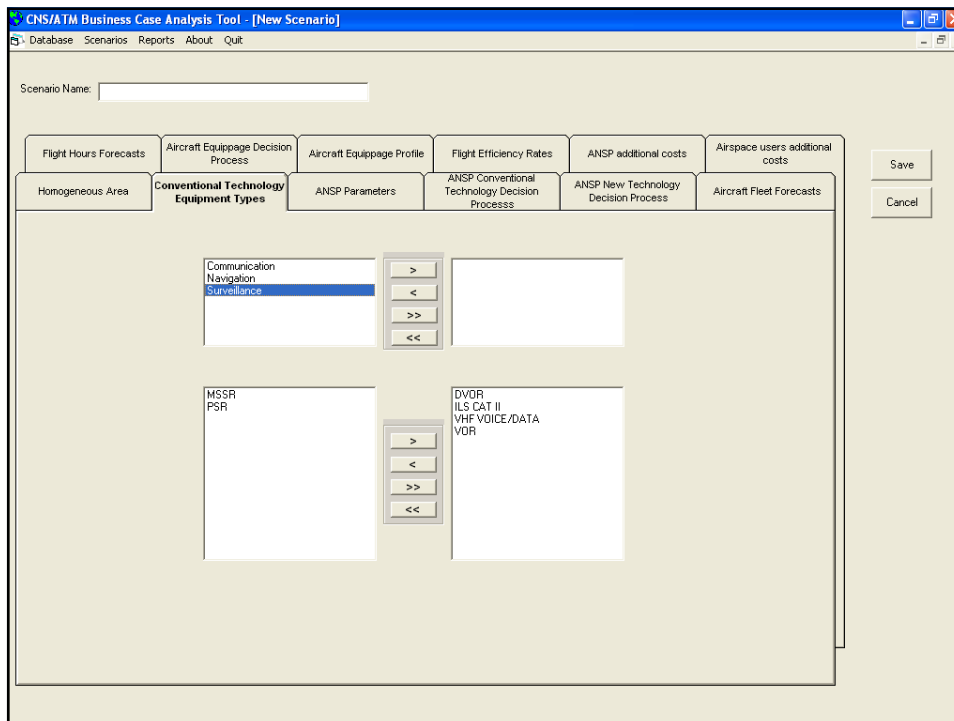
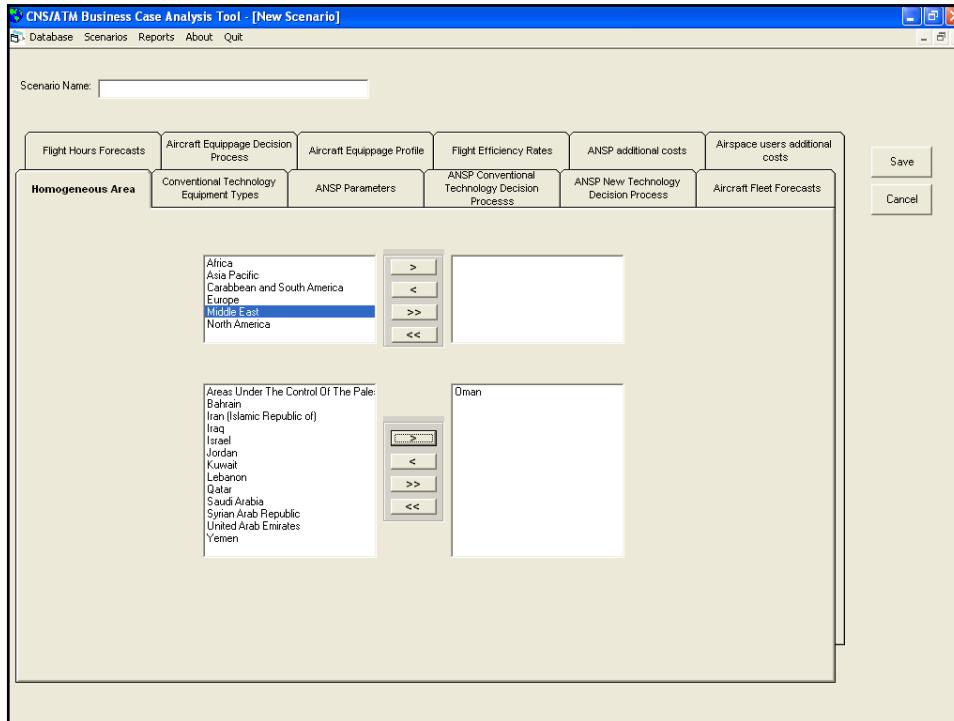
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## Construcción del escenario

- Area homogénea
- Tipos de equipo con tecnología convencional
- Parámetros de escenario
- Decisiones sobre equipo con tecnología convencional
- Decisiones sobre equipo con nueva tecnología
- Pronósticos de flota
- Pronósticos de movimientos de aeronaves
- Costos adicionales
- Proceso de equipamiento de aviónica

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CNS/ATM Business Case Analysis Tool - [New Scenario]

Database Scenarios Reports About Quit

Scenario Name:

Flight Hours Forecasts Aircraft Equipage Decision Process Aircraft Equipage Profile Flight Efficiency Rates ANSP additional costs Airspace users additional costs

Homogeneous Area Conventional Technology Equipment Types **ANSP Parameters** ANSP Conventional Technology Decision Process ANSP New Technology Decision Process Aircraft Fleet Forecasts

Save Cancel

**Analysis Period**

Start of Analysis Period 1 /01 /06

End of Analysis Period 1 /01 /25

**Cost Recovery**

Start of Cost Recovery Period 1 /01 /15

End of Cost Recovery Period 1 /01 /25

Discount Rate (%) 10

Profit Margin (%) 10

**CNS/ATM Operational Dates**

Equipment Category	Operational Date
Communication	1/01/15
Navigation	1/01/15
Surveillance	1/01/15

**Other parameters**

Transition Period (Years) 10

Default Installation Date 1 /01 /95

Default Life Cycle (Years) 10

Max. Stretching Period 10

Max. Refurbishment Period 10

Year switching Month 6

**ANSP Equipment Decommissioning cost**

Consider decommissioning cost

**ANSP Equipment Residual Values**

Consider residual value at the end of the transition period to CNS/ATM

Consider residual value of conv. tech. at end of the analysis period

Consider residual value of new tech. at the end of the analysis period

Default Parameters

CNS/ATM Business Case Analysis Tool - [New Scenario]

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Homogeneous Area Conventional Technology Equipment Types ANSP Parameters **ANSP Conventional Technology Decision Process** ANSP New Technology Decision Process Aircraft Fleet Forecasts

Save Cancel

Total Number: 6

Location	ICAO Location Indicator	Type of Equipment	Installation Date	Option
MUSCAT/SEEB INTL	OOMS	VOR	1/01/83	Keep until the end of the transition period
MUSCAT/SEEB INTL	OOMS	VHF VOICEDATA	1/01/86	Replace at the end of each life cycle
MUSCAT/SEEB INTL	OOMS	ILS CAT II	1/01/83	Do not include in the analysis
MUSCAT/SEEB INTL	OOMS	PSR	1/01/85	Do not replace at the end of life cycle
MUSCAT/SEEB INTL	OOMS	MSSR	1/01/85	Do not include in the analysis
MUSCAT/SEEB INTL	OOMS	DVOR	1/01/85	Do not include in the analysis

Apply to all Apply to Selected

CNS/ATM Business Case Analysis Tool - [New Scenario]

Database Scenarios Reports About Quit

Scenario Name:

Flight Hours Forecasts Aircraft Equipage Decision Process Aircraft Equipage Profile Flight Efficiency Rates ANSP additional costs Airspace users additional costs

Homogeneous Area Conventional Technology Equipment Types ANSP Parameters ANSP Conventional Technology Decision Process **ANSP New Technology Decision Process** Aircraft Fleet Forecasts

Save Cancel

Location	Equipment	Installation Date
▶ OOIZ - IZKI		
* OOJN - JARF NORTH		
OODB - KHASAB		
OODK - LEHWAIR		
OODA - MASIRAH		
OODM - MUSCAT FIR		
▶ <b>OODS - MUSCAT SEEB INTL</b>		
OODK - MARMUL		
OODZ - NIZWA		

CNS/ATM Business Case Analysis Tool - [New Scenario]

Database Scenarios Reports About Quit

Scenario Name:

Flight Hours Forecasts Aircraft Equipage Decision Process Aircraft Equipage Profile Flight Efficiency Rates ANSP additional costs Airspace users additional costs

Homogeneous Area Conventional Technology Equipment Types ANSP Parameters ANSP Conventional Technology Decision Process ANSP New Technology Decision Process **Aircraft Fleet Forecasts**

Save Cancel

Aircraft type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A320	56	57	59	61	63	64	66	68	70	73	75	
A310	50	51	53	54	56	58	59	61	63	65	67	
C130	23	24	25	25	26	27	28	29	29	30	31	
A340	21	21	22	23	23	24	25	26	26	27	28	
K35R	6	6	6	6	7	7	7	7	8	8	8	
B-757	6	6	6	6	6	7	7	7	7	7	8	
IL78	6	6	6	6	6	7	7	7	7	7	7	
C17	4	5	5	5	5	5	5	5	6	6	6	
AN12	4	4	4	4	5	5	5	5	5	5	5	
AN24	4	4	4	4	5	5	5	5	5	5	5	
SH7	4	4	4	4	4	5	5	5	5	5	5	
T154	4	4	4	4	4	4	5	5	5	5	5	
BA11	3	3	3	3	3	3	3	3	4	4	4	
IL76	2	2	3	3	3	3	3	3	3	3	3	
GLF4	2	2	2	3	3	3	3	3	3	3	3	
C135	2	2	2	2	2	2	2	3	3	3	3	
P3	2	2	2	2	2	2	2	2	3	3	3	
UH1	2	2	2	2	2	2	2	2	2	2	3	
NIM	2	2	2	2	2	2	2	2	2	2	2	
B707	2	2	2	2	2	2	2	2	2	2	2	
OTHERS	27	28	28	29	29	30	30	31	32	32	33	

Clear forecast grid Add aircraft type

CNS/ATM Business Case Analysis Tool - [Scenario Manager]

Database Scenarios Reports About Quit

Scenario Name:

Homogeneous Area Conventional Technology Equipment Types ANSP Parameters ANSP Conventional Technology Decision Process ANSP New Technology Decision Process Aircraft Fleet Forecasts

Flight Hours Forecasts Aircraft Equipage Decision Process Aircraft Equipage Profile Flight Efficiency Rates ANSP additional costs Airspace users additional costs

Save Cancel

Aircraft Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
B-737-4	32952	33981	35000	36051	37132	38245	39395	40576	41792	43045	44339	45
B-757	4152	4277	4405	4539	4675	4813	4957	5108	5260	5419	5580	57
DC-9-50	1888	1947	2004	2064	2125	2189	2256	2323	2392	2464	2539	26
A-300-600	23496	24203	24928	25676	26445	27237	28056	28899	29764	30659	31579	32
B-767-3/ER	30917	31844	32800	33784	34797	35843	36916	38024	39165	40340	41549	42
B-777	34290	35317	36379	37469	38595	39752	40944	42172	43437	44740	46083	47
B-727-2	1512	1556	1604	1652	1701	1752	1804	1859	1915	1972	2032	20
DC-10-4	6308	6496	6692	6892	7100	7312	7532	7757	7989	8229	10476	87
MD-11	6941	7149	7364	7587	7813	8048	8288	8539	8795	9059	9331	96
B-747-4	58731	60492	62308	64176	66101	68084	70128	72232	74397	76629	78931	81
OTHERS	19765	20160	20564	20976	21395	21821	22260	22704	23157	23621	24083	24
A330	49659	51146	52683	54261	55891	57565	59293	61072	62904	64792	66733	68
A320	40603	41820	43075	44365	45699	47068	48480	49936	51435	52976	54565	56
A310	36221	37309	38428	39581	40768	41992	43252	44549	45885	47261	48680	50
C130	16957	17467	17989	18531	19085	19659	20248	20856	21483	22125	22789	23
A340	15195	15651	16117	16603	17100	17613	18141	18685	19245	19824	20419	21
K35R	4340	4469	4604	4741	4884	5032	5181	5339	5499	5661	5823	60
IL18	4059	4180	4304	4435	4565	4704	4845	4989	5140	5293	5453	56
C17	3189	3285	3384	3485	3589	3699	3808	3923	4040	4163	4285	44
AN12	2965	3053	3147	3240	3339	3437	3540	3645	3756	3868	3984	41
AN24	2955	3043	3133	3228	3324	3424	3525	3622	3741	3853	3971	40
SH7	2900	2988	3076	3171	3264	3363	3464	3568	3675	3784	3899	40

CNS/ATM Business Case Analysis Tool - [New Scenario]

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Flight Hours Forecasts Aircraft Equipage Decision Process Aircraft Equipage Profile Flight Efficiency Rates ANSP additional costs Airspace users additional costs

Save Cancel

Start of Equipage Date: 1/01/15 End of Equipage Date: 1/01/25

Aircraft Type	Avionic Equipment	Maximum # of a/c equipped each year	Efficiency Rate
B-737-4	Package 1	7	7
DC-9-50	Package 1	0	0
A300-600	Package 1	3	7
B-767-3/ER	Package 1	3	7
B-777	Package 1	5	7
B-727-2	Package 1	1	7
DC-10-4	Package 1	2	7
MD-11	Package 1	3	7
B-747-4	Package 1	10	7
ATR-42	Package 1	2	7
A330	Package 1	6	7
A320	Package 1	10	7
A310	Package 1	5	7
C130	Package 1	2	7
A340	Package 1	4	7
K35R	Package 1	1	7
B-757	Package 1	1	7
IL18	Package 1	2	7
C17	Package 1	2	7
AN12	Package 1	1	7
AN24	Package 1	1	7
SH7	Package 1	2	7
Tr44	Package 1	4	7

Delete equipage dec.

CNS/ATM Business Case Analysis Tool - [Scenario Manager]

Database Scenarios Reports About Quit

Scenario Name:


Homogeneous Area    Conventional Technology Equipment Types    ANSP Parameters    ANSP Conventional Technology Decision Process    ANSP New Technology Decision Process    Aircraft Fleet Forecasts

Flight Hours Forecasts    Aircraft Equipage Decision Process    Aircraft Equipage Profile    Flight Efficiency Rates    **ANSP additional costs**    Airspace users additional costs

Save  
Cancel

Cost Type	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Other	0	5000	7000	5000	6000	5000	6000	7000	0	0	0	0

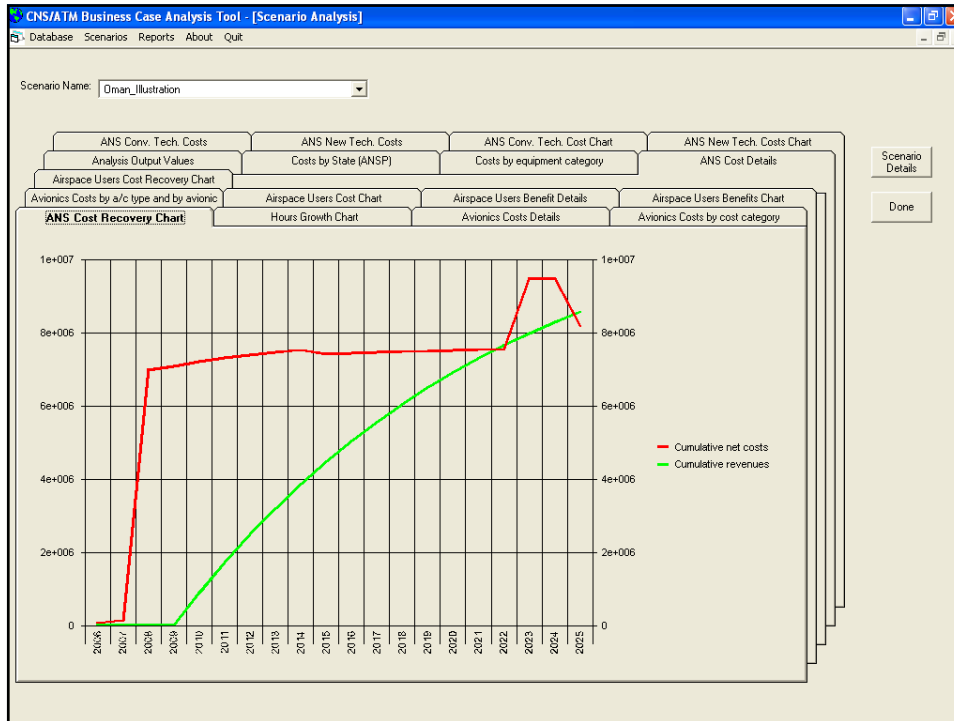
Clear cost grid    Add cost line



## Resultado del análisis

- **Resumen de valores del resultado del análisis**
  - Valor actual de costos, ingresos
  - Monto anual promedio de cargos a usuarios
  - Año de recuperación de costo
- **Costos:**
  - por Estado,
  - por locación,
  - por tipo de equipo,
  - por equipo específico
- **Cuadros de recuperación de costos para ANSP y usuarios de espacio aéreo**

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CNS/ATM Business Case Analysis Tool - [Scenario Analysis]

Database Scenarios Reports About Quit

Scenario Name: Oman\_Illustration

Airspace Users Cost Recovery Chart

Avionics Costs by a/c type and by avionics    Airspace Users Cost Chart    Airspace Users Benefit Details    Airspace Users Benefits Chart

ANS Cost Recovery Chart    Hours Growth Chart    Avionics Costs Details    Avionics Costs by cost category

ANS Conv. Tech. Costs    ANS New Tech. Costs    ANS Conv. Tech. Cost Chart    ANS New Tech. Costs Chart

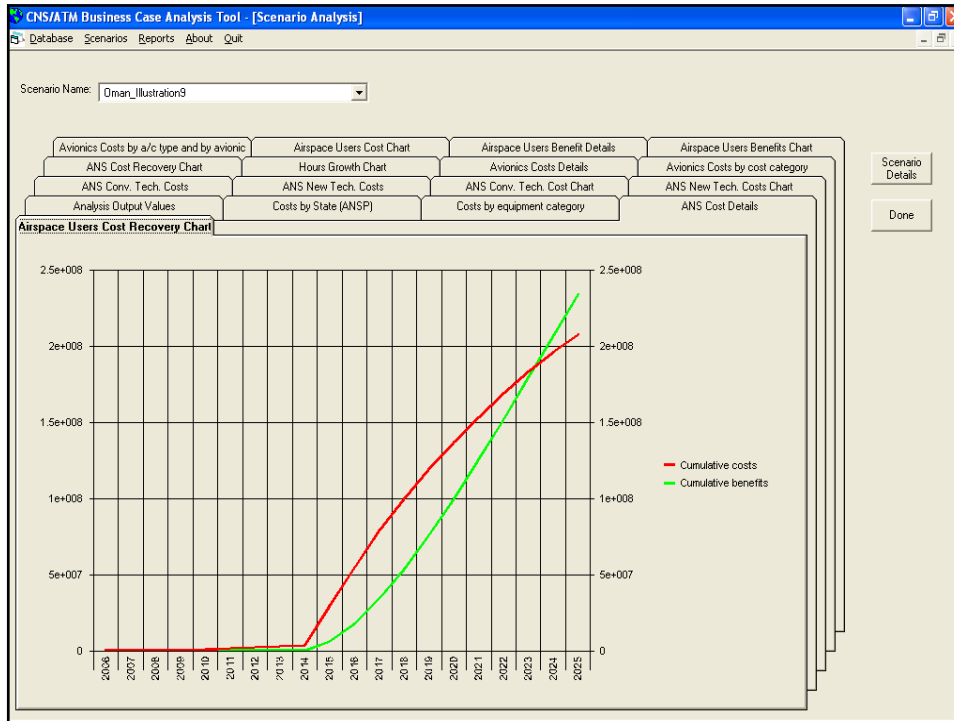
Analysis Output Values    Costs by State (ANSP)    Costs by equipment category    **ANS Cost Details**

Conventional Technology cost details							
State	Location	ICAO LocDesig	Equipment	Technical Option/Decision	Installation Date	2006	2007
Oman	MUSCAT/SEEB INTL	OOMS	VOR	Keep until the end of the tr	1/01/93	0	0
Oman	MUSCAT/SEEB INTL	OOMS	VHF VOICE/DATA	Keep until the end of the tr	1/01/86	750	7
Oman	MUSCAT/SEEB INTL	OOMS	ILS CAT II	Keep until the end of the tr	1/01/93	75000	7
Oman	MUSCAT/SEEB INTL	OOMS	PSR	Keep until the end of the tr	1/01/95	2000	2
Oman	MUSCAT/SEEB INTL	OOMS	MSSR	Keep until the end of the tr	1/01/95	1000	1
Oman	MUSCAT/SEEB INTL	OOMS	DVOR	Keep until the end of the tr	1/01/85	0	0
<b>Total</b>						<b>78750</b>	<b>7</b>

New Technology cost details							
State	Location	ICAO LocDesig	Equipment	Installation Date	2006	2007	2008
Oman	MUSCAT/SEEB INTL	OOMS	AMHS	1/01/08	0	0	500
Oman	MUSCAT/SEEB INTL	OOMS	AMSS Voice/Data	1/01/08	0	0	655
Oman	MUSCAT/SEEB INTL	OOMS	GBAS	1/01/08	0	0	860
Oman	MUSCAT/SEEB INTL	OOMS	SBAS-Ref	1/01/08	0	0	255
Oman	MUSCAT/SEEB INTL	OOMS	SBAS-Mst	1/01/08	0	0	307
Oman	MUSCAT/SEEB INTL	OOMS	ADS-B	1/01/08	0	0	395
Oman	MUSCAT/SEEB INTL	OOMS	ADS-C (Workstations)	1/01/08	0	0	260
<b>Total</b>					<b>0</b>	<b>0</b>	<b>773</b>


Scenario Details  
Done



**Fortalezas y debilidades**

- El análisis cubre ANSP y usuarios del espacio aéreo
- Decisiones de escenario para cada equipo individual
- Monto promedio de cargos a usuarios
- Costos detallados
- Los costos referenciales son genéricos
- Eficiencia de vuelo beneficia un ingreso
- Instalación/servicio multinacional

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**RESUMEN**

- Flexible
- Interactivo
- Abierto
- Evolucionario

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