



# **European Commission**

## **Study of the financing needs of ATM to achieve the Single European Sky**

Stakeholder Workshop  
Brussels, 21 October 2004



## Speakers for the workshop

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John Raftery

Solar Alliance

Martin Hawley

Solar Alliance

Stephen Wainwright

Steer Davies Gleave

Open discussion facilitated by Philip Hogge



# Agenda for the meeting



## 14:00 – 15:00 Briefing on the study

- Outline of the study and objectives for the workshop *John Raftery*
- Implications of the Single Sky legislation *Martin Hawley*
- Current financing mechanisms and their limitations *John Raftery*
- Improved financing mechanisms *Stephen Wainwright*

## 15:00 – 17:00: Open discussion on the issues (*facilitated by Philip Hogge*)

- Implications of the Single Sky legislation
- Current financing mechanisms and their limitations
- Improved financing mechanisms



## Study background



The Single European Sky legislation became law on 20 April 2004

It has implications for (among other things):

- the organisation of airspace
- institutional arrangements
- investment plans (through requirements for interoperability)
- the structuring of services
- the need for more accounting transparency and separation

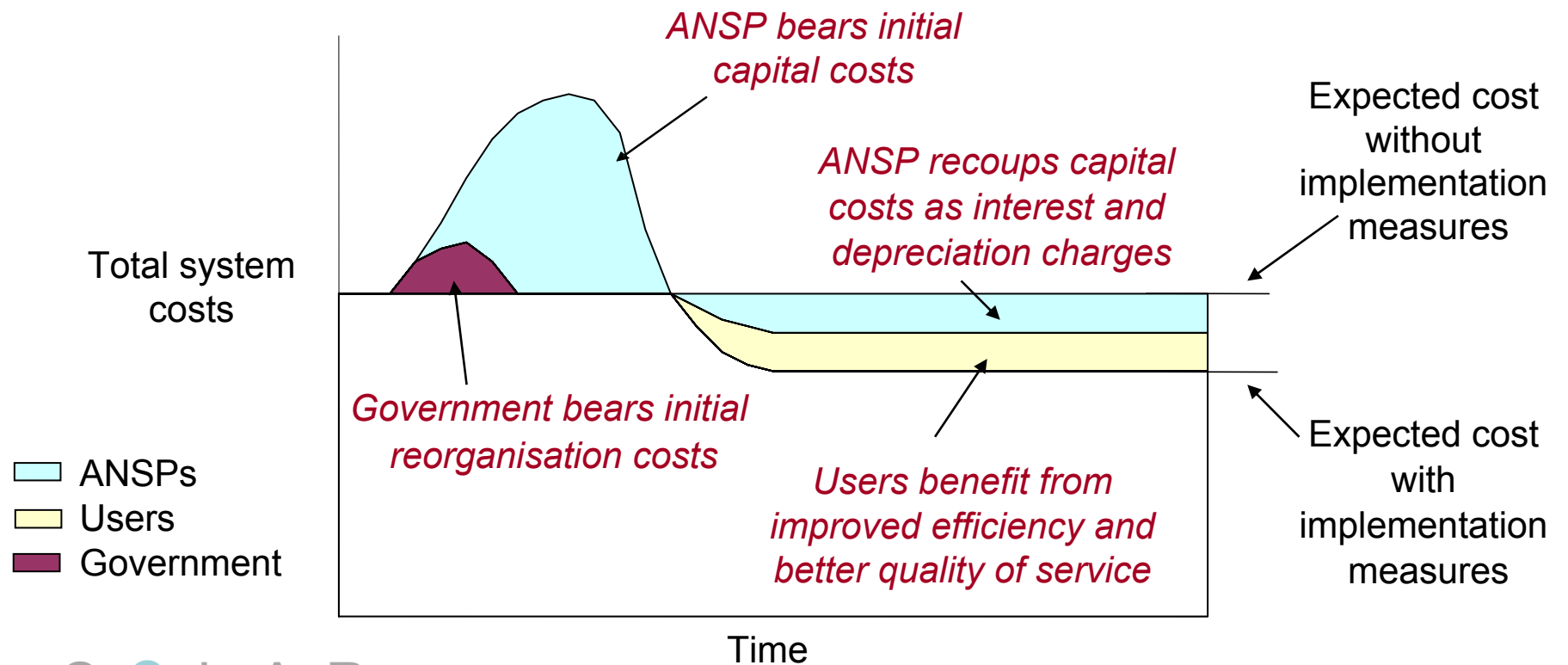


## Study background



*Some of these changes will require expenditure. However...*

- relatively little is **additional**
- changes will bring long-run benefits



## Study objectives



### *There may be difficulties in finding financial resources to do this:*

- benefits are not always immediate and tangible
- benefits may be distributed differently from costs
- large sums may be needed quickly if reform is not to be delayed
- some ANSPs may not be able to invest large sums

### *The Commission launched this study:*

- to determine the possible size of the impact
- to examine how the sector is currently financed
- to assess the limitations of current arrangements
- to investigate possible improved or additional mechanisms



## Study approach



- make maximum use of existing material
- extensive consultation with stakeholders
- Working Groups to brainstorm, develop ideas and share experience
  - ANSPs
  - Users
  - Government and regulators
  - Suppliers
  - PRU and CRCO

***The study has benefited greatly from the wholehearted cooperation and valuable contributions of many stakeholders***



## Results from the study



- Available in our report on Europa website
- Detailed review of the financial implications of the legislation (Phase 1)
  - What actions will be required, and of whom?
  - What will their financial costs, benefits and timing be?
- Detailed review of current financing arrangements (Phase 2)
  - How is ATM currently financed in Europe?
  - What are the funding anomalies?
  - What constraints and limitations are there?
  - Can we learn from practices outside Europe?
- What new mechanisms are needed (Phase 3)?
  - Can current mechanisms cope with what the legislation demands?
  - What new mechanisms are feasible?
  - Is there a role for a new Community instrument?





## Phase 1: The costs and benefits of the measures



*We reviewed the regulations in detail to assess costs and benefits of:*

- Low-cost items up to 2-3 man-years system-wide
- Medium-cost items up to 0.5% of annual system costs
- Interoperability
- Functional Airspace Blocks

Financial costs and benefits assessed for whole system

Present values discounted at 8% real to 2004



## Phase 1: Context of cost estimates



- Carried out January – March 2004
- Updated with the final form of the regulations in April
- Updated with views from stakeholders
- More detail will emerge with the development of implementation rules



## Phase 1: Low cost items



### *There are many low-cost consequences of the legislation...*

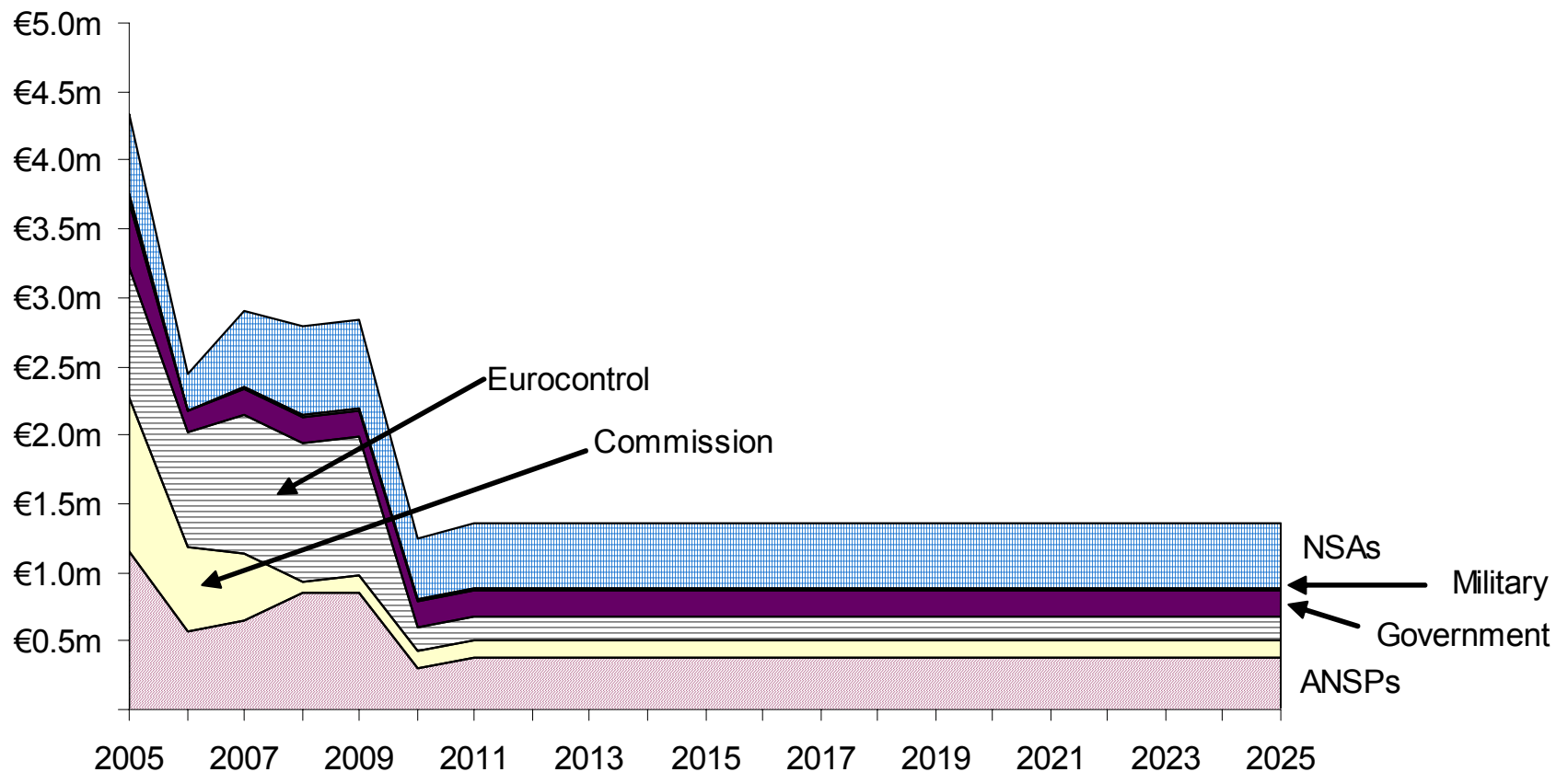
- Costs fall variously on ANSPs, Government, Eurocontrol, NSAs, Commission
- Typically implementing new practices, additional studies, consultation and regulatory compliance
- Total cost to 2025 around €35m
- Discounted PV €21m
- Benefits non-financial, intangible, or “enabling”



## Phase 1: Incidence over time of low-cost items



*Most low-cost items are transition costs; a few are continuing items*



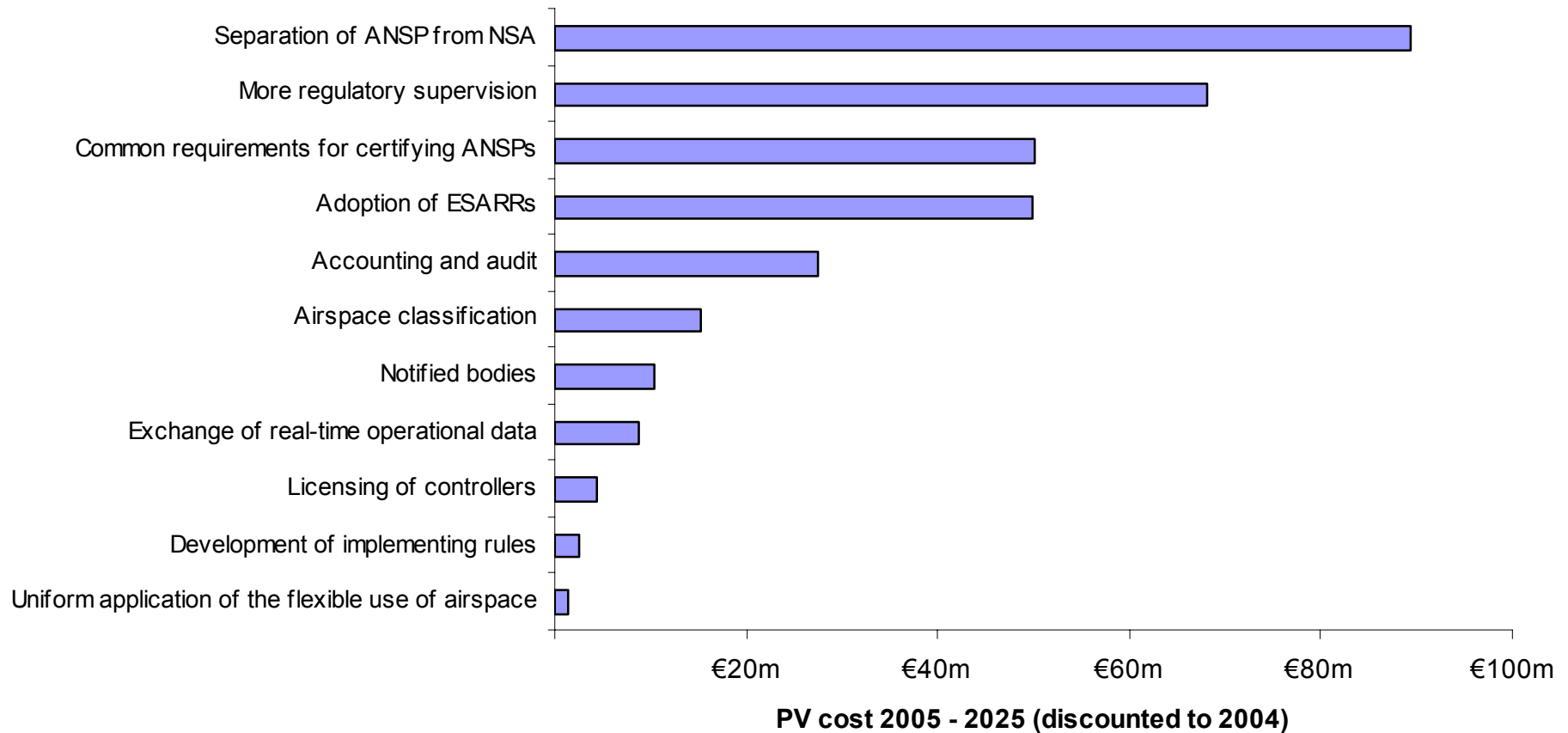
## Phase 1: Medium-cost items



- Institutional separation of ANSP from NSA
- Implementation rules
- Harmonisation of airspace classification
- Uniform introduction of Flexible Use of Airspace
- Increased regulatory supervision
- Implementation of ESARRs
- Impact of proposal on licensing of controllers
- Compliance for common requirements for certification of ANSPs
- Establishment of “notified bodies” to assess conformance with interoperability
- Enhanced accounting, financial reporting and auditing
- Exchange of real-time operational data



## Phase 1: Summary of costs of medium-cost items



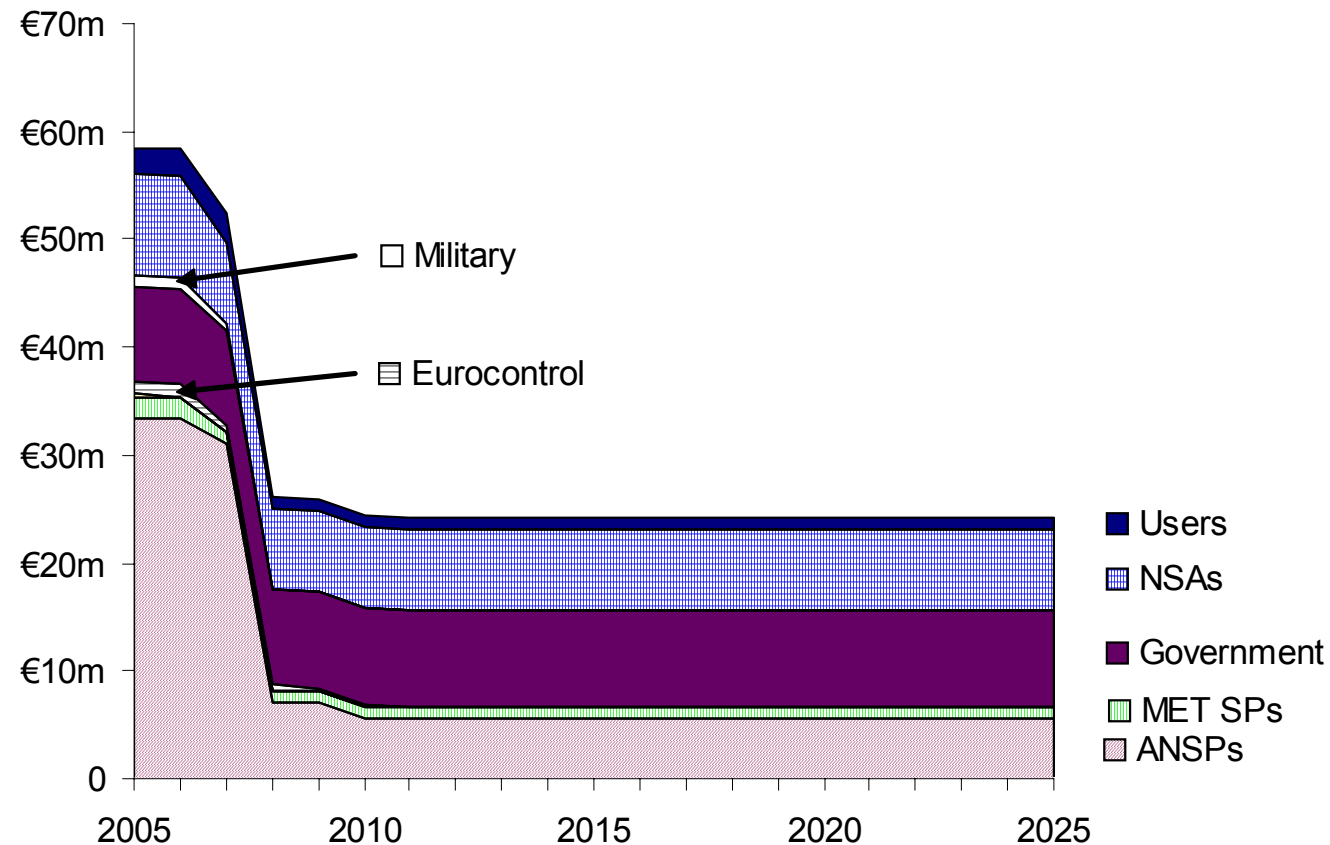
**Total cost to 2025 around €607m, discounted PV €340m**



## Phase 1: Incidence over time of medium-cost items



*Substantial running cost implications as well as transition costs*



## Phase 1: Discretionary military costs (medium)



*Military providers of civil control services may choose to comply*

	Estimated cost (€m)					
	2005	2006	2007	2008	2009	2010
Adoption of ESARRs	1.0	1.0	0.6	0.0	0.0	0.0
Common requirements for certifying ANSPs	1.9	1.9	1.9	0.1	0.1	0.1
Accounting and audit	1.2	1.2	0.5	0.5	0.5	0.5
Licensing of controllers	1.8	1.8	1.8	0.3	0.3	0.3
<b>Total costs</b>	<b>5.9</b>	<b>5.9</b>	<b>4.8</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>



## Phase 1: Interoperability



*Uncertainties both in the scope and timing of necessary measures*

### Scope

- Low-scope – focus on harmonised interfaces
- High-scope – focus on need to ensure rapid implementation of new technology

### Timing

- No premature replacement – 20-year implementation
- Premature replacement – accelerated implementation



# Phase 1: Interoperability



## Low-scope solution

- Development costs – five-year development programme, €300m
- Implementation costs – only if accelerated implementation
- Procurement benefits
  - Common standards and specs – 5% saving
  - Reduced adaptation costs – 10% saving
- Operational benefits
  - Improved inter-centre coordination - 1.5% saving
  - Engineering support costs saving – 5% saving

## High-scope solution

- Development costs – eight-year development programme, €2bn
- Not a necessary consequence of the SES
- Benefits not assessed



## Phase 1: Interoperability assumptions



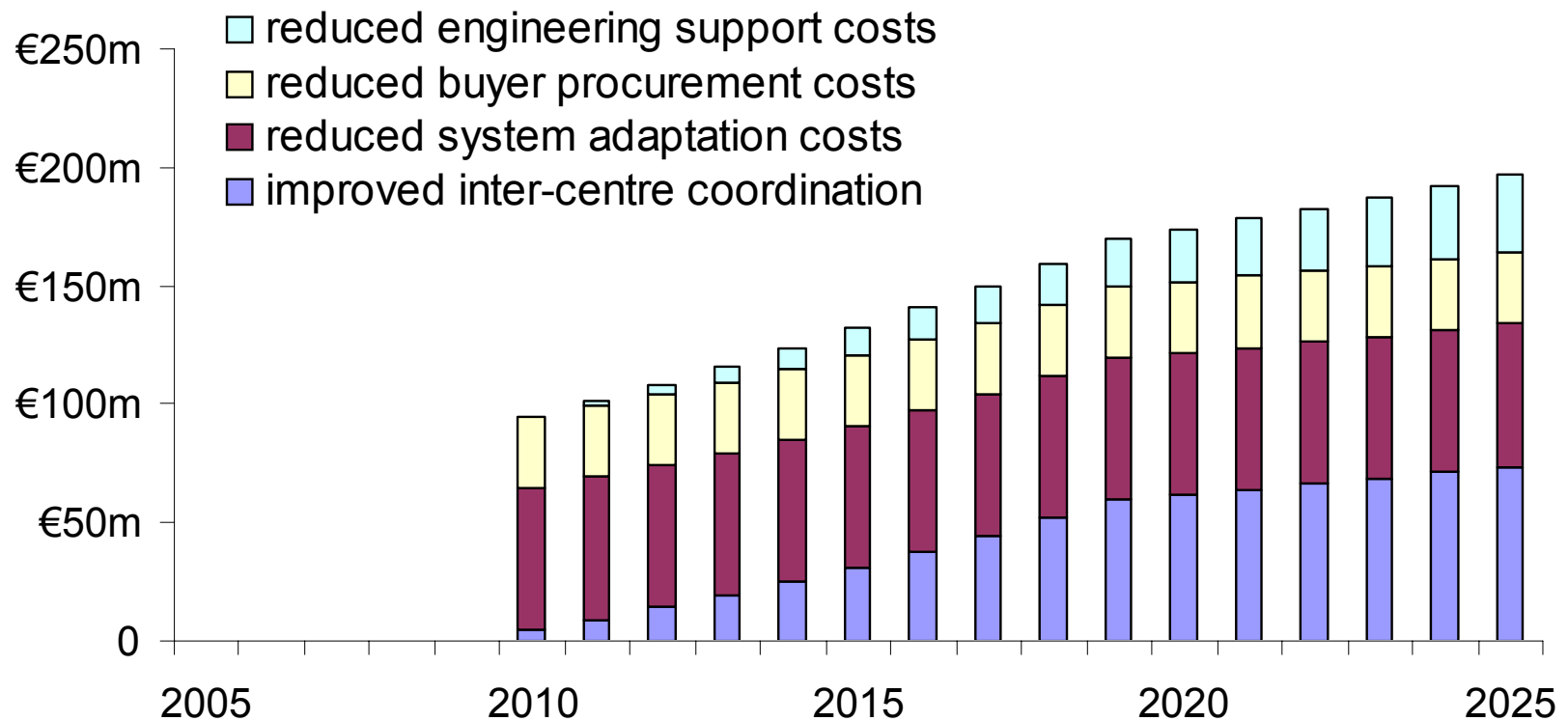
Our conclusions assume *low-scope solution, no premature replacement*

- Development costs 2005-9
- Procurement benefits over 20 years from 2009
- Operational benefits improve over time

*First phase of SESAME corresponds to our low scope solution*



## Phase 1: Benefits of interoperability (low-scope)



## Phase 1: Functional airspace blocks



*We needed assumptions on implementation method and timing*

### Four possible implementation methods

- Delegation (Swiss, NUAC) – low cost but not universally applicable
- Consolidated centre (Maastricht, CEATS)
- Dynamic control – common systems
- Dynamic control – high interoperability

### Timing and geographical spread

- Scenario assumed from prior EC report
- Scenario covers all SES airspace (upper and lower) – and more
- Creation of 9 FABs over seven years
- Earliest commissioning of FAB centre 2013



# Phase 1: Implementation methods for FABs



## Delegation

- Minor adjustments to centre boundaries – could be quick and cheap
- Not universally applicable – assumed to be part of general productivity improvement and not a direct consequence of the Single Sky

## Consolidated centre

- Implementation €4m per sector
- 10% for project definition
- 20% for decommissioning, relocation, redeployment
- One existing centre retained for contingency



## Phase 1: Implementation methods for FABs



### Dynamic control (common systems)

- Premature replacement of systems – cheaper than consolidated
- Requires “low-scope” interoperability
- Earliest implementation 2014
- Some synergy with interoperability – not fully explored

### Dynamic control (high interoperability)

- Requires “high-scope” interoperability
- Earliest implementation 2017



# Phase 1: Benefits of Functional Airspace Blocks



## *Benefits of FABs arise from:*

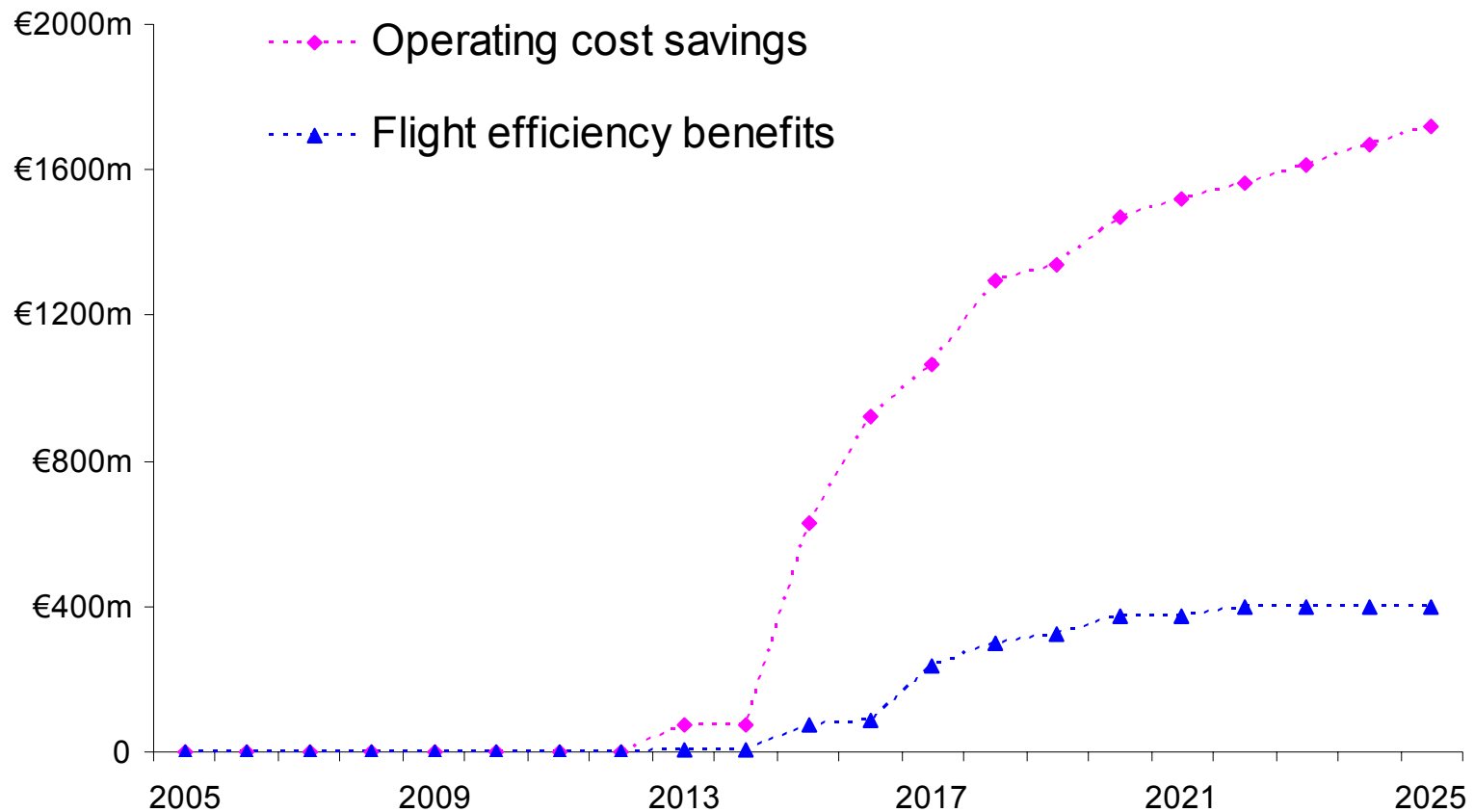
- Improved sectorisation – 20% reduction in operating costs
- Flight efficiency savings - 2% reduction in airline operating costs, phased in
- Increased allocative efficiency
  - depends on centres being consolidated (more potential for small centres)
  - not quantified for this study

*Benefits are assumed to be the same for different implementation methods*





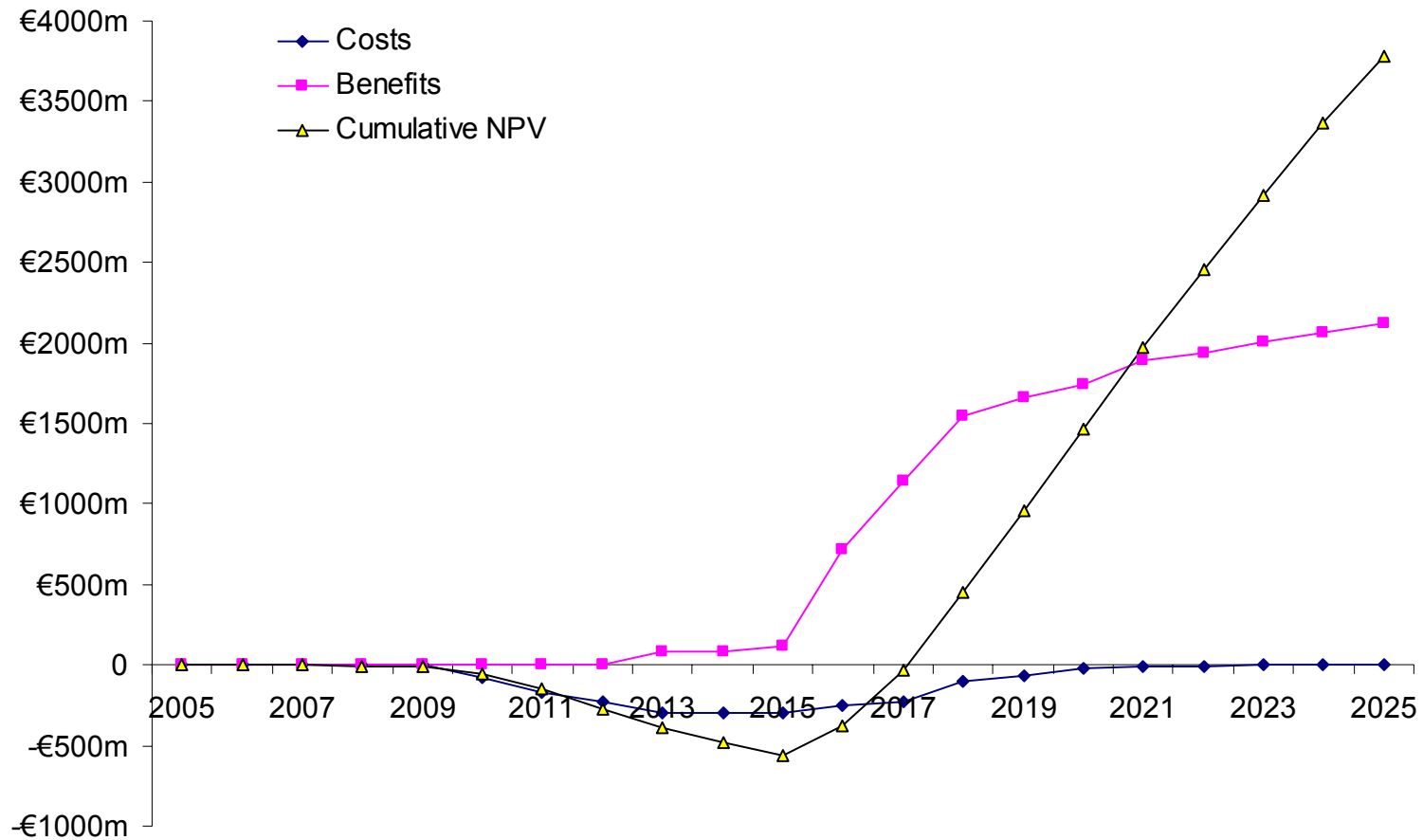
# Phase 1: Benefits of Functional Airspace Blocks



## Phase 1: Costs and benefits of FABs



*...assuming illustrative mix of implementation methods*



## Phase 1: Costs and benefits of SES implications



### *Taking all these implications together...*

No cost-benefit analysis of the SES or any individual items, but

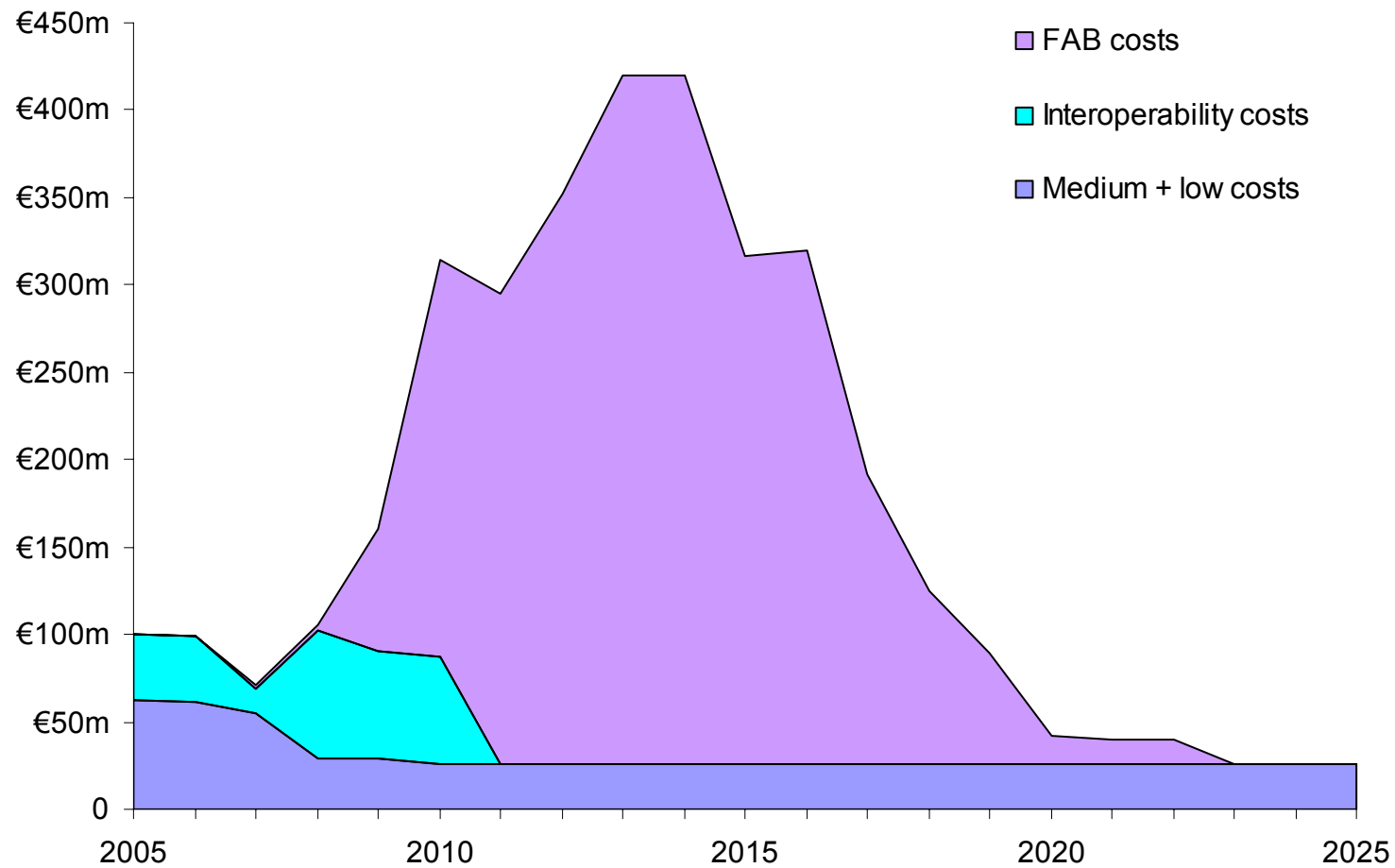
- Credible estimates, based on reasonable assumptions
- Open to challenge by ANSPs
- FABs are most important element of cost by far
- Low-scope interoperability is significant cost
- Medium- and low-cost items important in aggregate

On these order-of-magnitude assumptions...

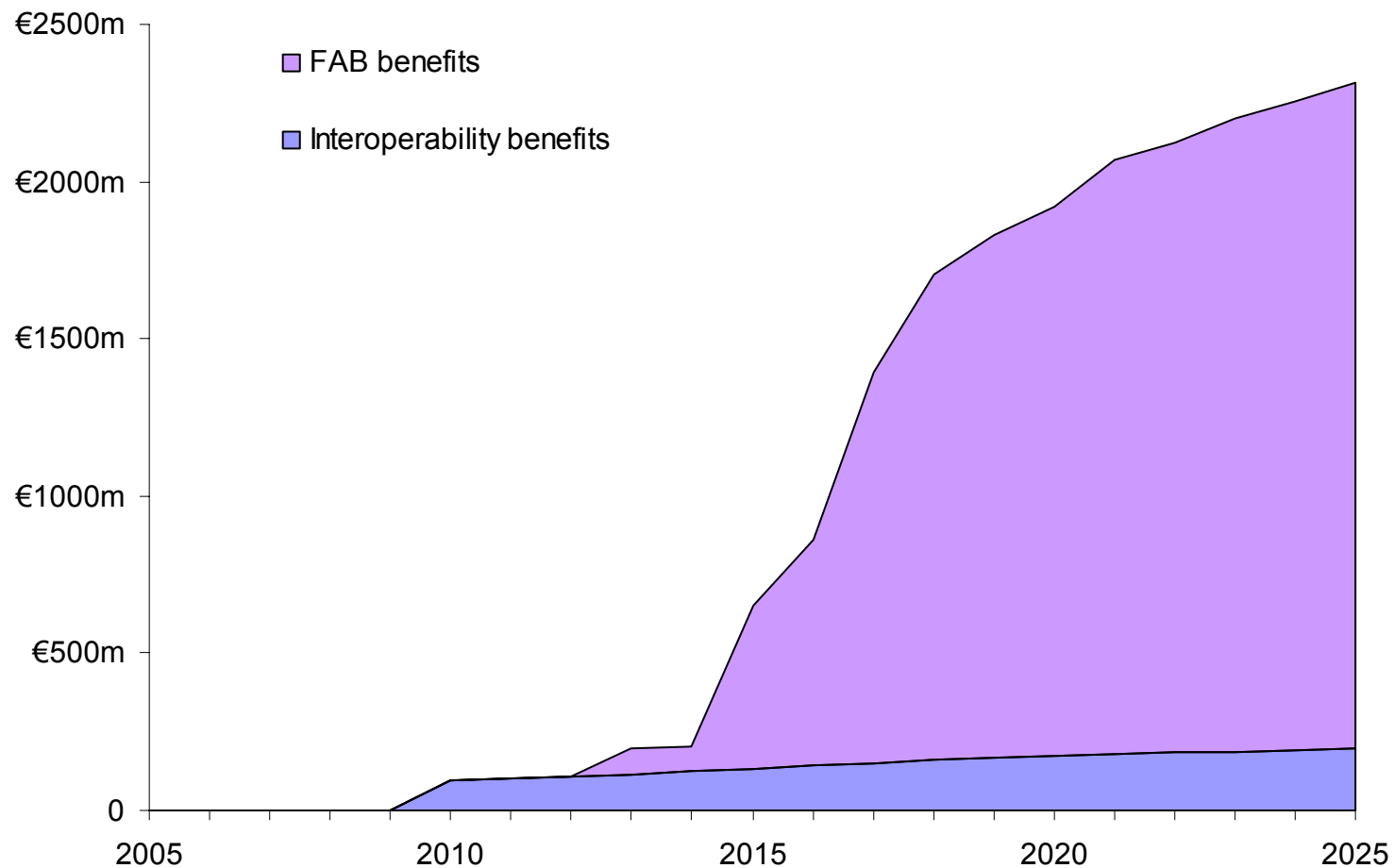
- Positive benefit/cost ratio
- Benefits are long-term – NPV is not positive until horizon past 2018



## Phase 1: Overall costs of SES implications



## Phase 1: Overall financial benefits of SES implications



## Phase 2: Existing financing mechanisms



Principal source of finance: User Charges based on cost recovery, or on incentive mechanism

### Potential financing needs

- difference in timing caused by unexpected changes (such as traffic drop)
- needs for major investment

### Commonly used mechanisms

- Government loans
- commercial loans
- working capital or cash reserves
- equity or cash injections

### Occasionally supplemented by

- Community funding – TEN / PHARE
- EIB loan
- leasing
- standby credit facilities
- Government contribution (VFR / Military)



## Phase 2: Constraints and limitations



### Constraints

- Government borrowing limits
- Competing uses of finance
- Commercial borrowing covenants
- Institutional or legal structure
- Problems of size – some ANSPs are too small to obtain certain sources of finance

### Limitations (perceived by different stakeholders)

- No incentive for international cooperation to improve system efficiency
- Inadequate user consultation
- Lack of commitment to deliver benefits
- Long lead time for payback on major investments
- Little incentive for cost efficiency

### Sensitivity to traffic fluctuations

- Does not seem to be a problem in practice for ANSPs



## Phase 2: Financing anomalies



***There are some anomalies that might cause economic distortions:***

- Value Added Tax: some ANSPs must pay but cannot reclaim
- Corporate tax: some pay profit tax, some do not
- Dividends: some pay dividends to shareholders, some do not
- Exemptions: some are funded for exemptions, some recover costs from users
- Eurocontrol funding: some receive implicit subsidy

***More details are in our report***





## Phase 2: Lessons from outside Europe



### *We reviewed financing and governance arrangements in:*

FAA, Nav Canada, Air Services Australia, Airways NZ, ATNS South Africa

- No fundamentally different approach to financing
- Some innovative governance arrangements
- Emphasis on ANSP/user partnership
- Examples of strong, independent economic regulation of charges



## Phase 3: Proposals for additional or alternative mechanisms



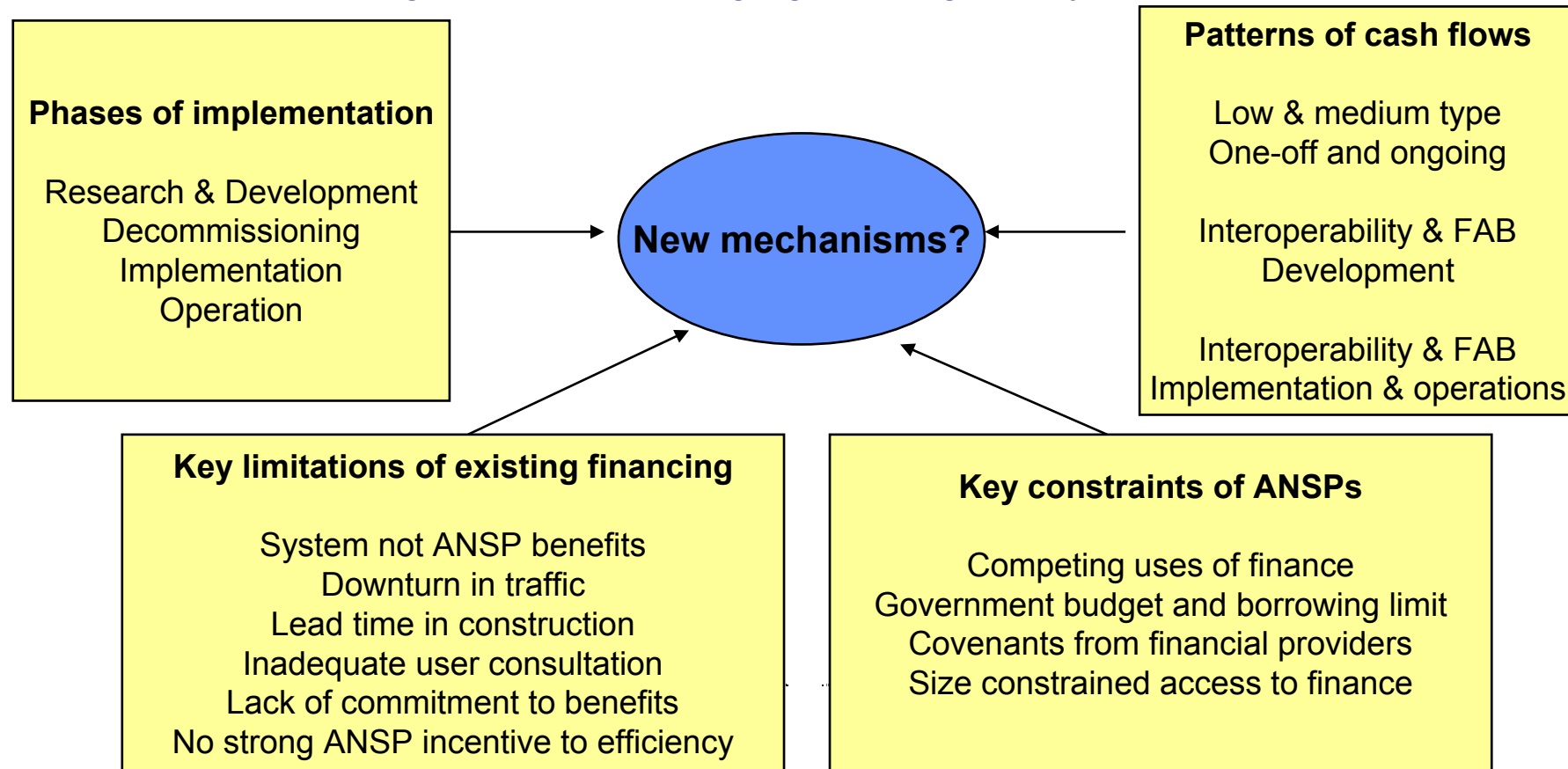
- Framework for assessment
- Six specific financial mechanisms examined
- Existing Community Financial Instruments – applicability and extension?
- Possible New Community Financial Instrument – if needed?
- Impact of separation of Infrastructure from Service Provision



## Phase 3: Framework for assessment



- Results of Phase 1 and 2 findings
- What if new governance, charging and regulatory mechanism?



## Phase 3: Six specific financial mechanisms we examined



*We examined six possible new mechanisms, applicable on an ANSP or country basis*

- Manufacturer financing of capital investment
- Intra-ANSP financing
- Consolidated bond
- Joint venture (SPV) between ANSPs and airlines
- consolidated equity fund
- Direct passenger fees



## Phase 3: Specific mechanisms - assessment



	Key issues impacting on assessment	Our assessment
Manufacturer financing	Relative cost of finance (manufacturer vs ANSP) Effect – limitation of competition	✓✓
Intra-ANSP financing	Volunteers for ANSP arranger role Are ANSPs willing to cede control of revenues to other ANSP?	✓?
Small ANSP Consolidated bond	Ability for ANSPs to work together EIB, other financial institutions' interest	✓✓
Joint venture SPV	Relative cost of financing Mismatch of stakeholder timescales / objectives	X?
Consolidated Equity Fund	More expensive than other alternatives Attitude of the financial investor community	??
Passenger / Cargo User Fee	Significant transaction costs relative to potential uses Incremental SES cost of ANS regulatory activities may not justify	XX

## Phase 3: Existing Community Financial Instruments



*A number of Community Financing instruments already exist...*

- **TEN-T:** some ATM use, crowded out by other transport modes
- **EIB, EIF, EBRD:** limited ATM use, and reducing – compliance costs
- **Research funding:** some funding available to ATM
- **Regional funding instruments:** some available through cohesion, not currently used for ATM



## Phase 3: ATM & existing Community Financing Instruments



### *...but their use has been limited...*

- EIB limited to small number of projects over last 5 years (1999-2003)
  - NAV, Portugal €28 million
  - Serbia & Montenegro €167 million
  - Cyprus ATC €129 million
  - Croatia € 66 million
- TEN-T ATM funding small proportion of total funding
  - Year 2000 total € 15 million (2.5% of total TEN transport spend)
  - Year 2001 total € 11 million (2.0% of total TEN transport spend)
  - Year 2002 total € 14 million (2.5% of total TEN transport spend)
  - Projects funded relatively small, in range €1 to €8 million per project
  - Significantly more TEN-T contribution for Global Navigation Satellite Systems
- Research Framework
  - Over period 1998 – 2002 contributed €21 million to funding ATM projects



## Phase 3: Improvements to existing instruments



*... however, improvements are proposed and planned*

### **Proposed changes to broader TEN-T legislation (Regulation 2004/0154 COD)**

- Increase of the overall budget from 4b€ to 20b€.
- Increased rate of contribution for projects (up to 50%)
- ATM specifically singled out
- Concentration on smaller number of projects
- Possible delegation of responsibility to Executive Agency

### **Possible improvements to EIB processes**

- Potential to reduce compliance cost
- Potential to support some of the ANSP / country specific financing mechanisms
- EIB welcomes opportunities to support SES





## Phase 3: Existing instruments: potential future use



*Our review of existing and proposed legislation showed potential use for...*

Name	Amount (€ million)	Key dependencies
EIB	Could be significant	flexibility in administration and suitable projects
TEN-T	Could be significant	Passage of proposed regulation
Research	Currently limited to €20-30 million pa	Clear research objectives

## Phase 3: New Community Financial Instrument



***We identified three potential funding gaps:***

- Research and Development
- Compliance requirements (with little or no immediate financial benefits)
- Incentives to create Functional Airspace Blocks

***A new Community Financial Instrument for SES to fill these gaps would require***

- Legislation
- New, independent organisation for governance / checks and balances
- Stakeholder buy-in



## Phase 3: New Community Financial Instrument



- Amount required depends on use of existing instruments
- Initial estimates based on Phase 1 analysis

Name	Source	€ Million Amount per annum	Duration	€ Million Gross total
R&D Fund	Eurocontrol 6 <sup>th</sup> framework	75-125	5 years	375-625
Compliance Fund	Community taxation	25-60	3 years	75-180
Airspace Restructuring Fund	Community taxation	40-50	10 years	400-500
<b>TOTAL</b>		<b>140-235</b>		<b>850-1,305</b>

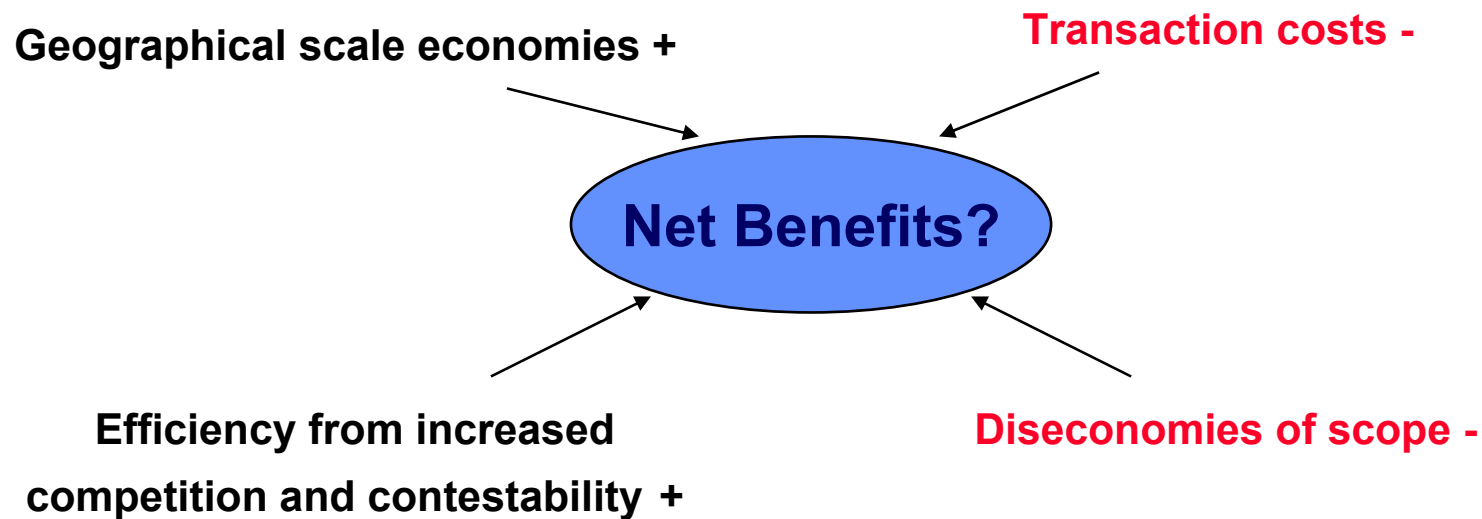
- Up to €110m/year from EU and €125m/year from re-directed Eurocontrol funds



## Phase 3: Separation of infrastructure from service provision



*Separation can bring both costs and benefits...*



## Phase 3: Alternative conceptual approaches to vertical separation



### Option i

**Infrastructure provider**

**All assets and systems**

**Engineering and support staff**

**Service provider**

**ATCOs and ATC support**

### Option ii

**Infrastructure provider**

**CNS assets, systems**

**Engineering and support staff**

**Service provider**

**ATM assets, systems,  
engineering and support staff**

**ATCOs and ATC support**

### Option iii

**Infraco CNS**

**Non-customer facing  
assets (radar,  
headquarters) and  
systems, engineering and  
support staff**

**Infraco ATM**

**Customer facing  
(ACC, control tower)  
asset and systems,  
engineering and  
support staff**

**Service provider**

**ATCOs and ATC  
Support**



## Phase 3: Vertical separation - views



- Any separation would need clear policy objectives
- Existing legislation promotes efficiency and industry provision – largely silent on competition and consolidation
- Net benefits need to be investigated – PRU cost of fragmentation study
- Could have an impact on financing arrangements



# Open discussion



## **Purpose of open discussion:**

- to help stakeholders understand the findings in the report
- to allow the Commission to hear stakeholders' views

## **However, the report has been finalised and on the Europa website**

- only minor factual errors can now be dealt with
- suggested questions are only to guide discussion



## Phase 1: Questions for discussion



*We assessed the costs and benefits in the period to May 2004, with extensive consultation. Since then, implementation rules are being drafted...*

- Is our interpretation of the legislation reasonable?
- Are there other options for implementation with lower or higher costs?
- Do the emerging implementation rules have an impact on the assessment?
- What timetable and scope are feasible for implementation of interoperability?
- Are our estimates of costs and benefits reasonable?
- What will motivate ANSPs to initiate cooperation on FABs?
- How will costs and benefits of different FAB strategies be compared across nations?
- Can all the costs be recovered from users? On what time scales?
- What actions must ANSPs and NSAs take to proceed with implementation?





## Phase 2: Questions for discussion



*The findings of Phase 2 were essentially factual, but also concerned constraints and limitations of existing mechanisms*

- Is our assessment of the constraints and limitations complete?
- Do the proposed new and modified mechanisms address them?



## Phase 3: Questions for discussion



### *Does SES create a financing problem that needs fixing?*

If so,

- Which of the six ANSP / Country financial instruments are attractive to meet which needs?
- How might they be implemented?
- What opportunities are there for increased use of **existing** Community Financial Instruments?

### *Is there still a gap to be filled by a new Community Financial instrument for the SES?*

- Do you agree with the areas identified as potentially needing additional community support? Are there any other areas?
- What are your views on the redirection of Eurocontrol's research funds to the SES?
  - Which existing programmes should be adjusted?
  - How will non-SES Eurocontrol stakeholders be affected?
- Should separation between infrastructure and service provision be explored?

