

# **FDP Institutional Issues**

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## **Organisational issues of co-operation**

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# Organisational issues of Co-operation

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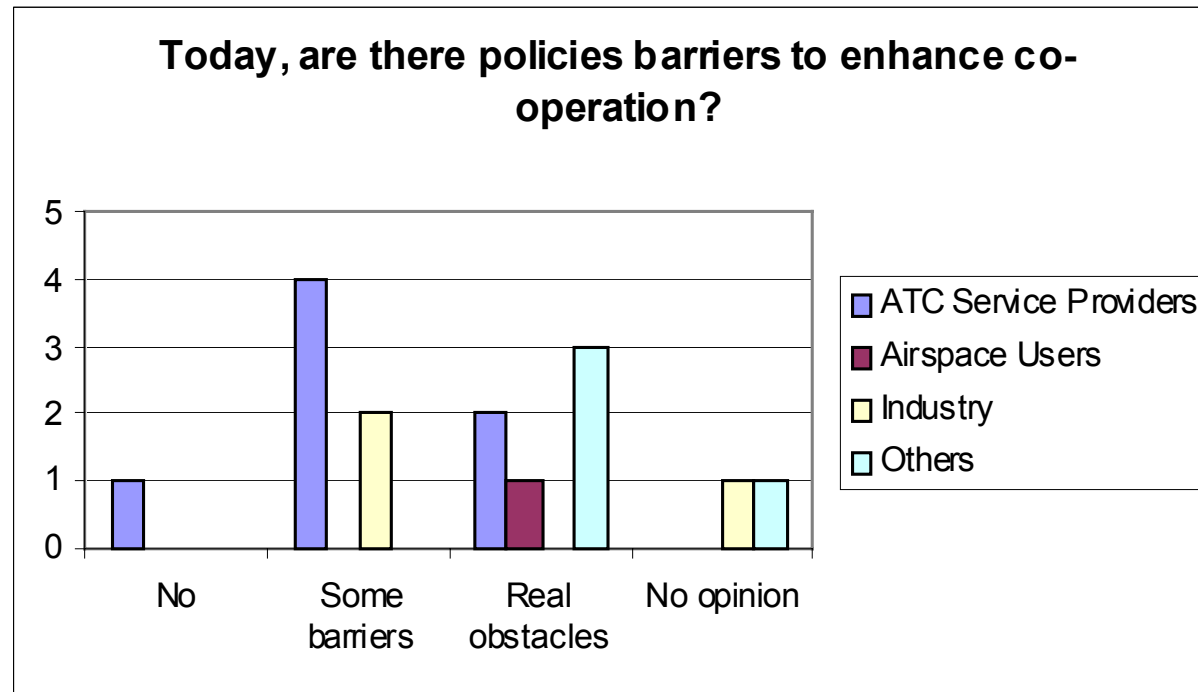
- Obtaining the View of the Stakeholders
  - which insufficiencies they detect in the existing regulation and organisation
  - what is their vision concerning the future organisation and regulation of the FDP systems
  - What are the issues to be solved with such new organisation and how they can be solved
- Assessing some projects conducted in a European collaborative context

# Main points

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- Are current institutional arrangements sufficient ?
- Role and mandate of the European institutions
- Role of the stakeholders
- FDP specification
- FDP procurement
- FDP service provision
- Standardisation requirements
- Data access - Data protection
- Safety

# Are Current Institutional and Organisational Arrangements Sufficient ?



Current obstacles are not so much of a technical nor of an operational nature, but they are inherited from the past fragmentation of service provision.

# Views on the roles and mandates of European institutions (1/3)

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## For some stakeholders:

The EC (with the technical help of Eurocontrol) should :

- Push the stakeholders in order that a decision is taken concerning the future of FDP systems. Only a political decision can force a consensus.
- Reassert the role of Eurocontrol in the definition of common operational concepts, functional specifications, interoperability requirements.
- Define a roadmap with mandatory milestones for implementation of standards.
- Regulate entry into service of new systems, including conformity assessment procedures (through which organism ?).
- Facilitate development of common validation tools for operational components.

# Views on the roles and mandates of European institutions (2/3)

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## Other opinions:

- Some stakeholders are not convinced that a “forced co-operation” at EU level would be more efficient than the existing one.
- Current policy is sufficient.
- Implementation of the standards at one’s own rhythm (voluntary multi (bi)-lateral co-operation)
  
- Note : Wariness about European decisions that might impact recent developments and investment decisions

## **Views on the roles and mandates of European institutions (3/3)**

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Most of the stakeholders think that the EC (and also Eurocontrol) should also be ready to provide incentives such as:

- funding for the common definition of requirements and standards.

Others think that the EC should also:

- provide funding for the development of interoperable systems,
- through economic regulation: include in charging principles mechanisms rewarding system-wide efficiency practices such as the introduction of systems implementing interoperability rules.

Clarification of the roles in regulation activities is necessary. The EC and Eurocontrol should have a common programme of regulation.

# Role of the stakeholders

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Global co-ordination is necessary.

Competition between ATSP's is prejudicial to the achievement of global optimum solutions.

Concern with price to pay if monolithic organisations are split.

Request for a clearer definition of stakeholders' role throughout the life-cycle of the system (nobody out).

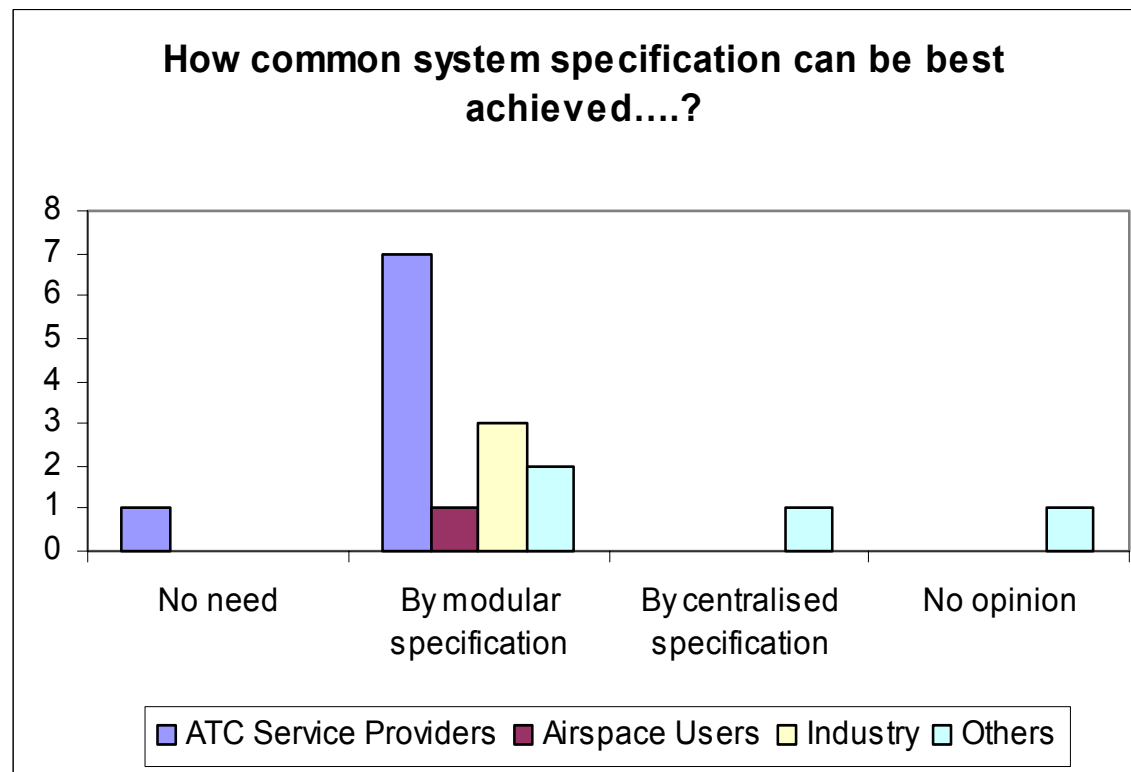
Role of Eurocontrol challenged in the architecture definition (at the level of components : role of ATS providers and Industry).

Industry wants to be in the loop very soon with appropriate funding. But is competition still possible in procurements ? Does this hinder innovation ?



# FDP Specification

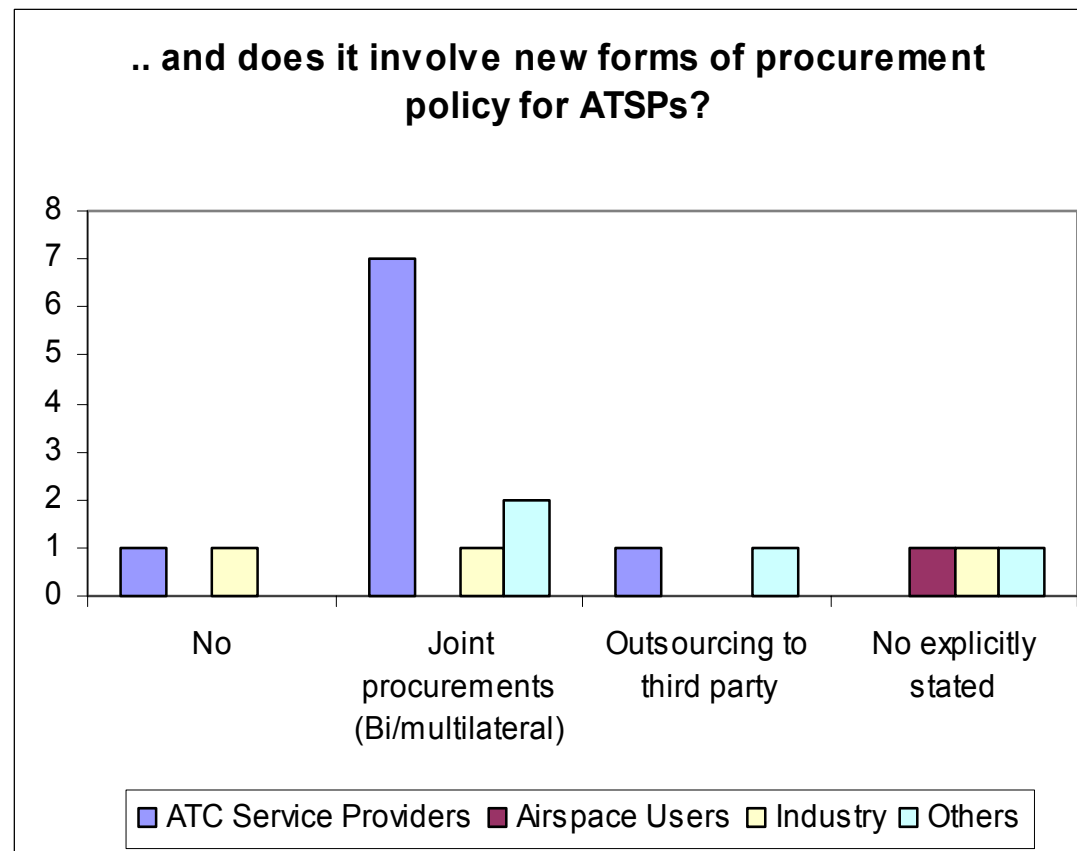
The specification of FDP systems can no longer be done in isolation. States must strive together for developing sets of common specifications based on jointly agreed modules provided that it also enables a certain level of customisation.



Some stakeholders fear that in a trans-national co-operation, “big” States could impose their views on “small” ones.

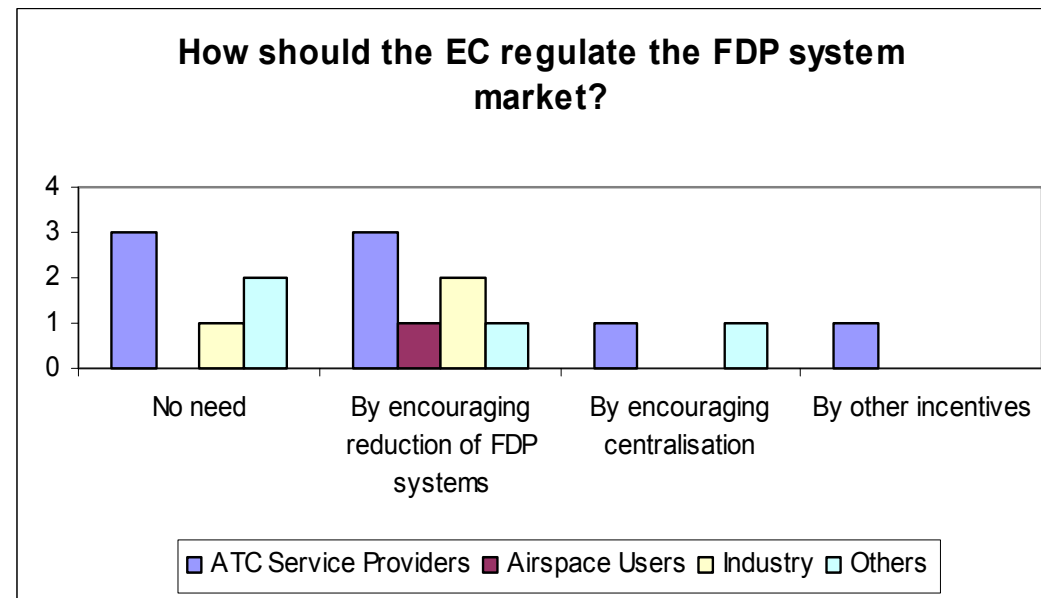
## FDP Procurement (1/2)

Most ATSP's do consider the possibility of a collaborative approach to specification for future procurements. The position of Industry is not so clear-cut (commercial risk).



## FDP Procurement (2/2)

Most interviewees think that a reduction in the number of FDP systems (and ATSU's) cannot be commanded by new procurement rules: "should be left to occur through voluntary co-operation and market force rather than regulatory enforcement".



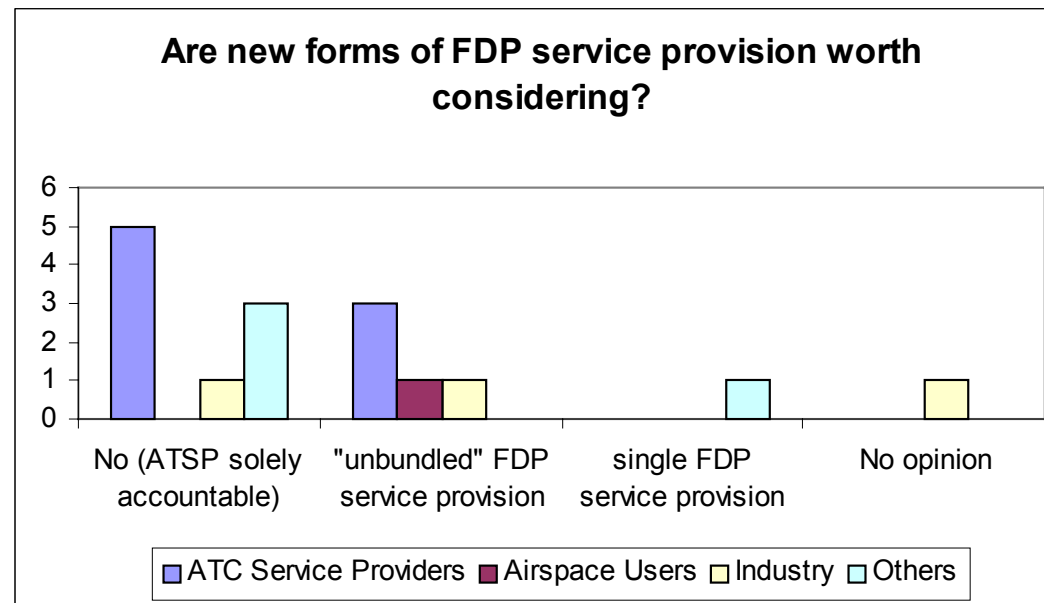
There is no question of reducing the number of industry manufacturers.

The idea of a single central system is not supported by ATSP's.

# FDP Service Provision

The idea to separate the FDP service from ATSP's core business is controversial.

- The option is contested, sometimes firmly (full control on this essential piece of ATM is needed).
- Can promote competition ; enabler for flexibility (Functional Blocks)



# Level and scope of Standardisation (1)

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Main ideas :

Large consensus on:

- the fact that current standards are too limited,
- the need to establish and enforce interoperability standards.

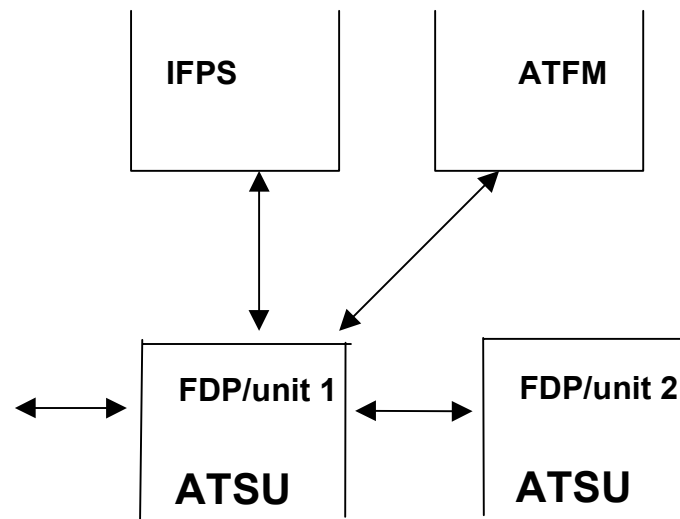
Vagueness in the level and scope of the standardisation

EUROCAE is the appropriate vehicle for interoperability standards.

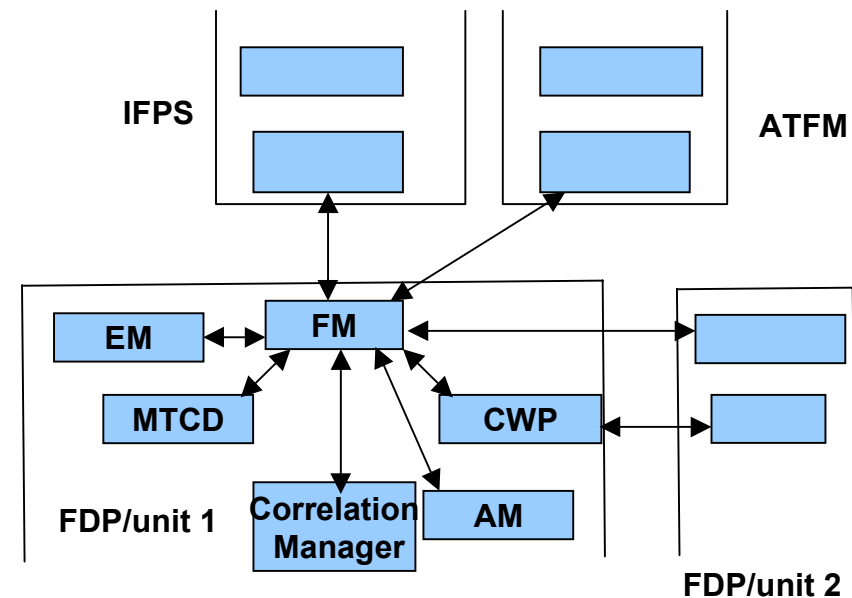
EC funding could help.

## Level and scope of Standardisation (2)

Vagueness on the level to which interfaces should be defined (level of ATM system breakdown)



between clusters  
of EOA components



between EOA components  
(inside ATSU)

## Level and scope of Standardisation (3)

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Vagueness on the level to which interfaces should be defined (level of ATM system breakdown)

between clusters  
of EOA components

*Coarse grain*

*Give freedom to design*

*Easier to define*

*Cover the need for « FD consistency »*

**FIRST PROBLEM  
TO BE SOLVED**

**MANDATORY**

between EOA components  
(inside ATSU)

*Fine grain, client-server approach*

*(component-based strategy)*

*Ease evolution*

*Favour competition*

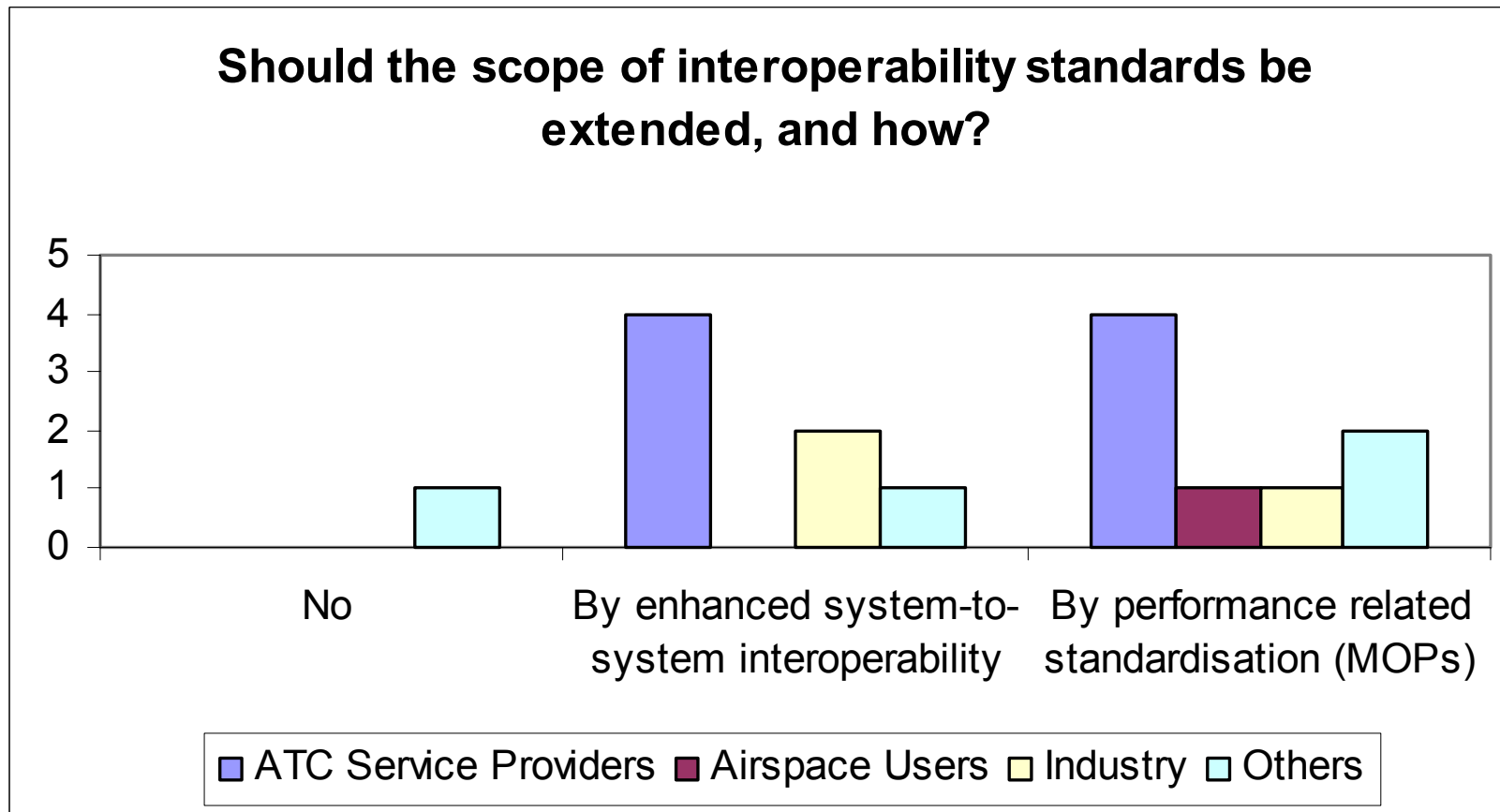
*Ease safety verification*

*Enable externalisation*

*but fragile !*

**VOLUNTARY**

## Level and scope of Standardisation (4)



Shall we go to formalised standards in the form of Minimum Operational Performance Standards (MOPS) - possibly including specification of standardised modules - binding on manufacturers as well as ATSPs?



## Level and scope of Standardisation (5)

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Suppliers want to be more involved in the standardisation process

**EUROCAE is seen as the right vehicle for interoperability standards definition**

A good balance must be observed between what is regulated (less evolution) and not regulated.

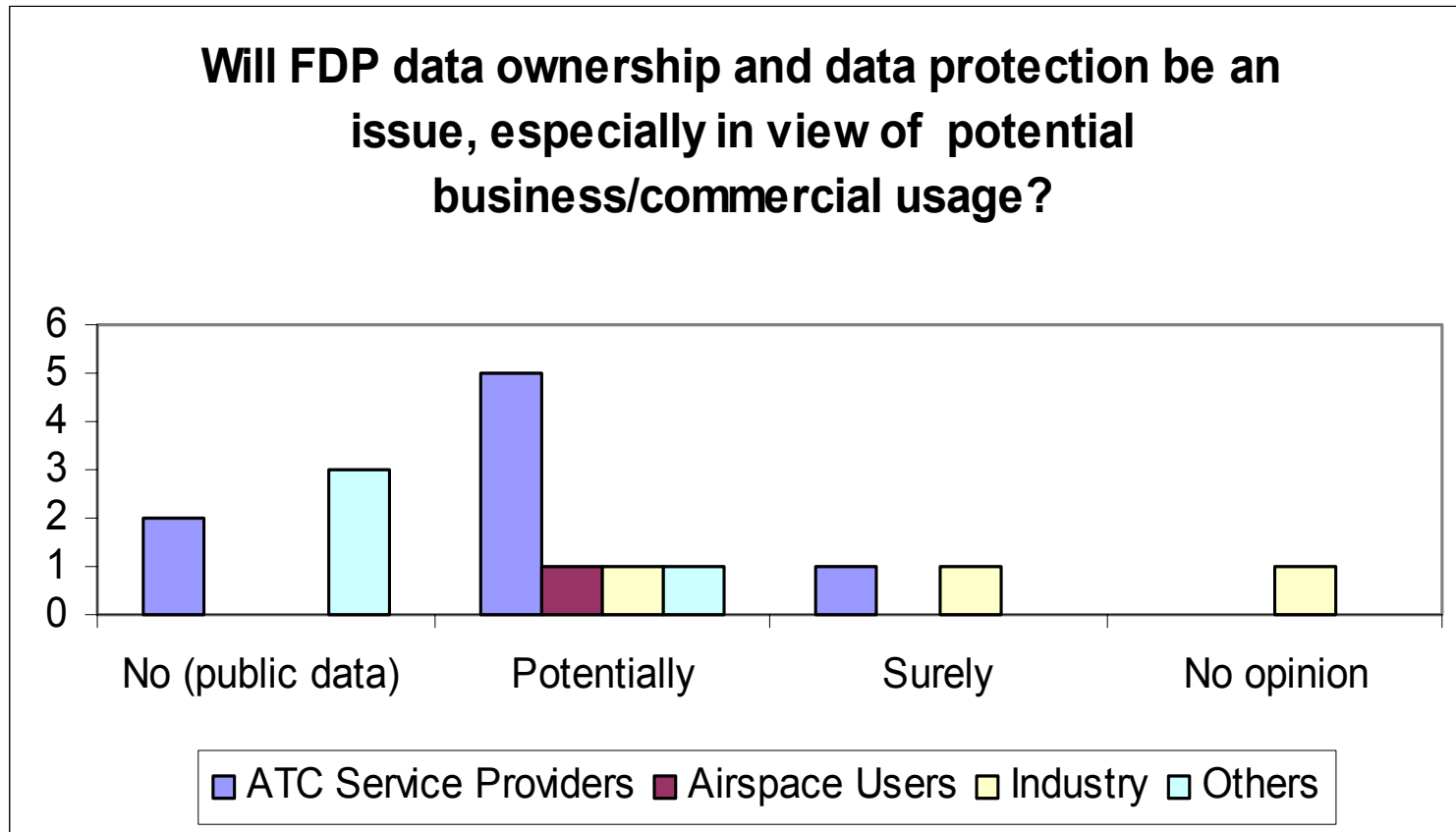
A voluntary standard can prove its efficiency and usefulness and then become a mandatory standard.

Standards should not be too detailed technically.

Interfaces could only be defined if there is a consensus on the role of the systems (ex : IFPS, CFMU); ATS providers have difficulties to abandon their local systems.

Must an interface definition been operationally validated before its standardisation?

## Data access - Data protection (1)



# Data access - Data protection (1)

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## Within the ATC community

Today, dissemination of flight data hampered by lack of system openness, ways of thinking...

Need for a European regulation framework:

- to encourage wider exchanges, and
- to guarantee free access to data (no charge),

Whilst protecting commercial confidentiality, integrity and privacy rights as necessary

## **Data access - Data protection (2)**

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### **Between ATC community and third parties**

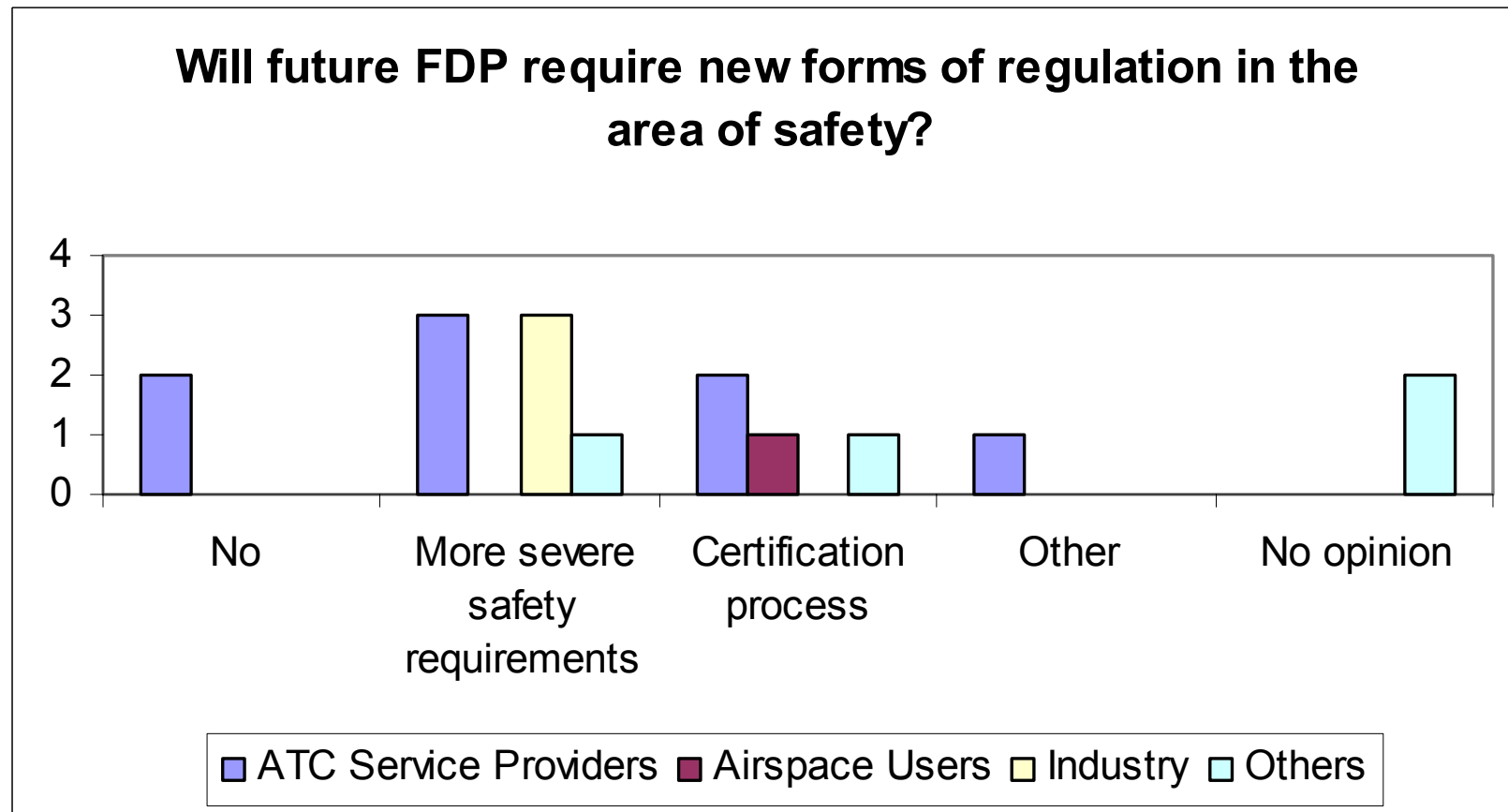
Need for European provisions to tackle security issues:

- access granted ONLY to authorized users:
  - accessibility only granted for professional usage;
  - real-time access reserved for operational users;

Economic regulation needed:

- if FD sold for commercial purposes.

## Safety issues (1)



## Safety issues (2)

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FDP is not safety critical. But safety considerations are paramount.

There is a need for more stringent safety requirements bearing on FDP services.

Existing regulatory framework may not be sufficient, but few adjustments required

The already well advanced work on ESARRs as the new safety standards should suffice.

### Certification process: several opinions

- We need a complete certification process.
- The certification process has not a high priority.
- A complete certification process would considerably reduce the flexibility of the system and its adaptability to technology change.
- Certification for components linked to the aircraft only.



# Conclusions (1)

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Nearly unanimous support for modular specification

Nearly unanimous support for shared procurements made on a voluntary basis

Unanimous support for enhanced standardisation

Solid support for EC-led regulation

- All stakeholders would like the Commission to push the setting up of interoperability standards.
- All stakeholders request from the Commission a regulation safeguarding and facilitating free access to all relevant flight data for providers with protection rules for third parties.
- The respective roles of EC, Eurocontrol and states have to be clarified (regulation activities)

## Conclusions (2)

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The stakeholders agree that there will be more co-operation needed at regional level in planning, procurement, and possibly operation.

Significant resistance to specialised FDP service provision.

Some diverging opinions on:

- the role of the stakeholders in the life-cycle of the system
- the level and scope of standardisation
- the level of certification



## Conclusions (3)

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Most ATS providers and suppliers do not want too many changes in the current organisation.

Some divergent opinions about the means to achieve this co-operation:

- political decision at the European level with EC playing a role in the definition and supervision of ATM activities
- Trans-national co-operation can only work on a voluntary basis; EC can encourage by proper funding mechanisms, withdrawal from national to more functional and regional paradigms.

The stakeholders' views relative to the strategy to be applied for improving ATM performance mirror diverging opinions concerning the Europe of tomorrow, its degree of political integration, the distribution of power levels and societal choices.

# Survey of some collaborative projects : **ARTAS (1)**

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A European-wide distributed Surveillance DP system for implementation in the ECAC area to assure a fully seamless operation through interoperable SDP units (ARTAS units or other SDP system fulfilling interoperability requirements)

Client-server type interface

Key words

- Harmonisation: common operational and performance requirements
- Integration: fusion of surveillance data, erasing geographic borders
- Modularity: supposing an evolution towards a component based architecture of the ATC systems allowing an easy integration

# Survey of some collaborative projects : **ARTAS (2)**

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## Positive results:

- technology of the tracker : ten years ahead !
- harmonisation: requirements and interfaces widely accepted
- flexibility and interoperability
- centralised development and maintenance : cost beneficial

## Negative results:

- No integration of SDP units, no regionalisation: each centre continues to possess its own unit processing the national data to cover its area of interest ; tracking continuity function has never been implemented
- Slow implementation in the ECAC centres (no component-based evolution of ATM systems ; no need to replace a system that works)
- Place of Industry in the project

# Survey of some collaborative projects : **ARTAS (3)**

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## Lessons learnt

- The notion of “fully seamless operation” suggests a reduction of system units and centres which goes against the will of ATS providers to retain full control over their systems – mainly for safety and sovereignty reasons - even if this is at higher cost for them.
- It has been proven however that it is possible to harmonise the requirements, and to define standard interfaces even for large-scale and complex systems.
- The definition of a new system is driven by the user needs, and its acceptability depends on its perceived value added when compared with legacy systems.
- The development and maintenance of a single system replicated as many times as necessary is cost efficient, but it may conflict somewhat with the policy to promote competition and competence sharing amongst industry suppliers. The ARTAS experience has shown that manufacturers do not want Eurocontrol to play the decision maker role in the procurement and development of operational systems.
- The IPR have to be clarified from the beginning; the share of IPR between several participants must be avoided.

# Survey of some collaborative projects : eFDP (1)

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## Lessons learnt

■ The eFDP project has proved that the achievement of core high level specifications was possible.

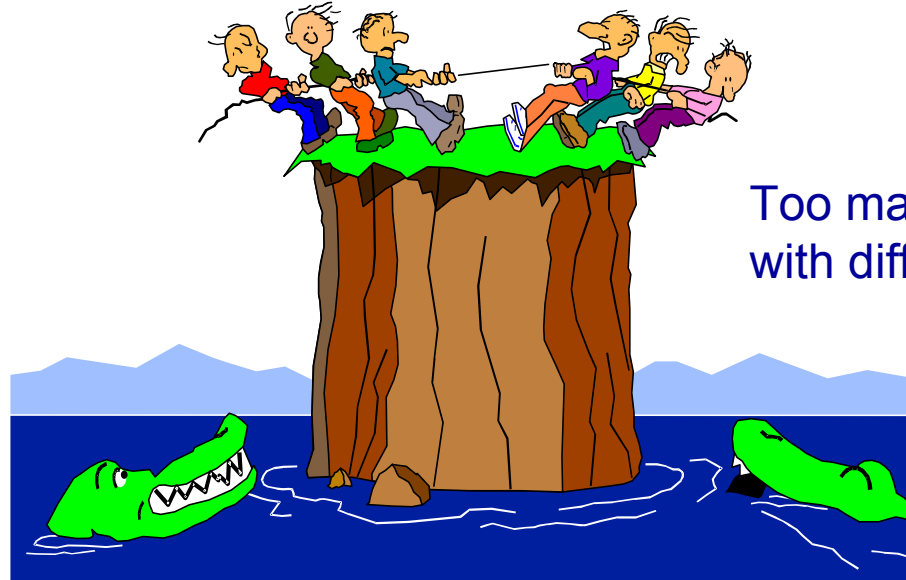
But this output was just a small part of the whole set of requirements to be addressed which included also local functions and specific interfaces with other components (surveillance, CWP, etc.).

The ATSP's involved came to the conclusion that the production of a common kernel was not worth it because a substantial part of the system still had to be tailor-made for them.

## Survey of some collaborative projects : eFDP (2)

- The ATSP's and Eurocontrol have currently too different objectives, methods, approach, organisations, policy concerning their relationship with industry, ideas on their respective responsibilities to make possible the definition, procurement and development of large systems like the FDPS. It is very difficult to define efficient and binding decision-making procedures.
- A Collaborative programme survives in spite of its overhead when separate individual projects are not feasible.

DIFFERENT OBJECTIVES, METHODS, STRATEGIES  
RELATIONSHIP WITH INDUSTRY



Too many people  
with different views

# Survey of some collaborative projects : **AVENUE**

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## Lessons learnt

- The architecture of new systems based on common middleware and/or API's, the definition of interfaces between components are challenging for research centres, ATS providers and Industry.
- It is however very difficult in a group of 13 stakeholders plus the EC to have convergent objectives and interests, to agree on the role of each participant, to be equally motivated, the 50% funding not being a help to find motivation, to achieve a “pan–European” way of working.
- It is important that each partner is rewarded for his participation by concrete results that are really useful to him (and not only for the money).
- The need to involve all the key players and to reach a consensus is not compatible with short term efficiency.
- But the criticism against this type of project, which is commonplace, can be tempered if you consider that a better understanding between partners, and the building of convergent objectives and interests are as much important as tangible technical results.