Bilag IV

Evaluation of Avinor AS' organization

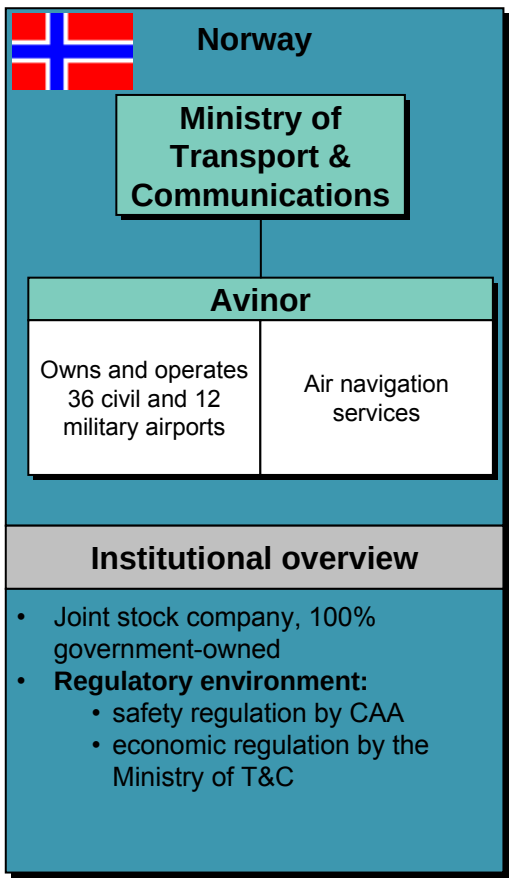
International frame of reference

Oslo
May 2006

Table of content

Organizational arrangement is one of the key issues – Avinor is unusual but not unique in its integration of airports and ATM

Examples of integrated organizational set-ups

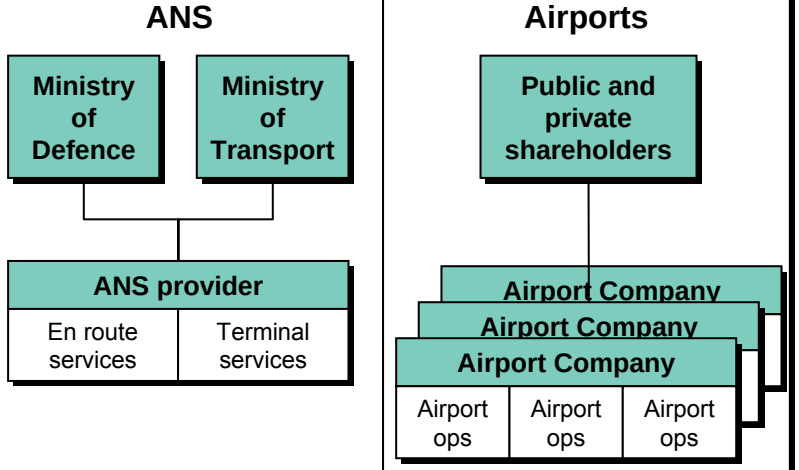


Similar structure exist in Sweden, Finland and Spain

Note: A state-enterprise is a government-owned corporate entity operating under special statute – not commercial law

Most European States have moved away from integrated to much more disaggregated organizational structures

Generic model 1 – Austria, Germany, Switzerland, Australia, New Zealand

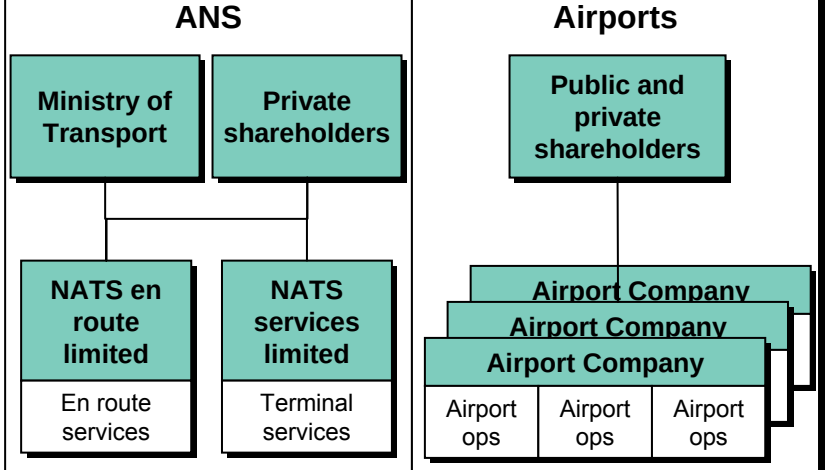


Institutional overview

Airports:
- Range from fully private, listed companies through to State-owned entities
- Safety regulation and licensing by the civil aviation safety regulator
- Economic regulation by the government or by a appointed regulatory agency

Air navigation services:
- Range from State-enterprises through to limited liability companies
- Governance set-up according to national models and can include supervisory and executive boards
- Safety regulation vests with the government, CAAs or self-regulation
- Economic regulation lies with the government

Generic model 2 – UK



Institutional overview

Airports:
- Private companies although they may have government shareholders
- Safety regulation through the CAA – Safety Regulation Group
- Economic regulation of LHR, LGW, STN and MAN by CAA – Economic Regulation Group

Air navigation services:
- NATS is a PPP in the form of a joint stock company
- En route services provided by NATS under a government licence
- Terminal services provided by NATS under contract to the relevant airports – these services are open to competition
- Safety regulation by the CAA – Safety Regulation Group
- Economic regulation of en route services by the CAA – Economic Regulation Group, terminal services are not *de facto* regulated

There are obvious pros and cons associated with both the integrated and disaggregated institutional models

	Integrated Organization	Disaggregated Organization
Customer Service	+ Facilitates consistent objectives and quality of service throughout a larger part of the value chain + Development of a customer service culture that is homogeneous + "One-face-to-the-customer"-Approach − Often perceived as focusing on "surface" quality and not having quality content	− Potential for inconsistent interpretation and enforcement of regulations across customer base + Decision-making is closer to the customer to better serve the customer − Communication with the customer may require the participation of several business units to accomplish objectives − Difficult to establish a homogeneous customer service culture with many lines of communication
System Modernisation / Capital Investment	+ Single decision point to address systems that touch all parts of the air traffic /airport operation − User consultation for investment programs (such as in ATM) difficult to organize	+ Individual investments programs can be processed individually ("dual till") − "Uniqueness" in each facility (tower, en route, airport) might lead to disparate acquisitions that are costly in human performance and the bottom-line
Cost Management	+ Simplified organization permitting timely decisions – if executed well − Potential for lack of transparency + Potential economies of scale due to shared services utilization	+ Much higher transparency in transactions between different actors + Better compliance with international/EU-regulation − Potential for costs to be managed at too low resolution and no knowledge of the "big picture"
Human Capital	+ Frequent communication among staff and management leading to mission accomplishment + Centralized compensation structure leads to greater employee job satisfaction as results are rewarded − Different profiles and qualifications – Air Traffic Controllers perceived as being "special"	− Potential for separation of responsibility and authority leading to the inability to accomplish change / improvements + Performance measurement more adequate to reflect individual aspects of businesses

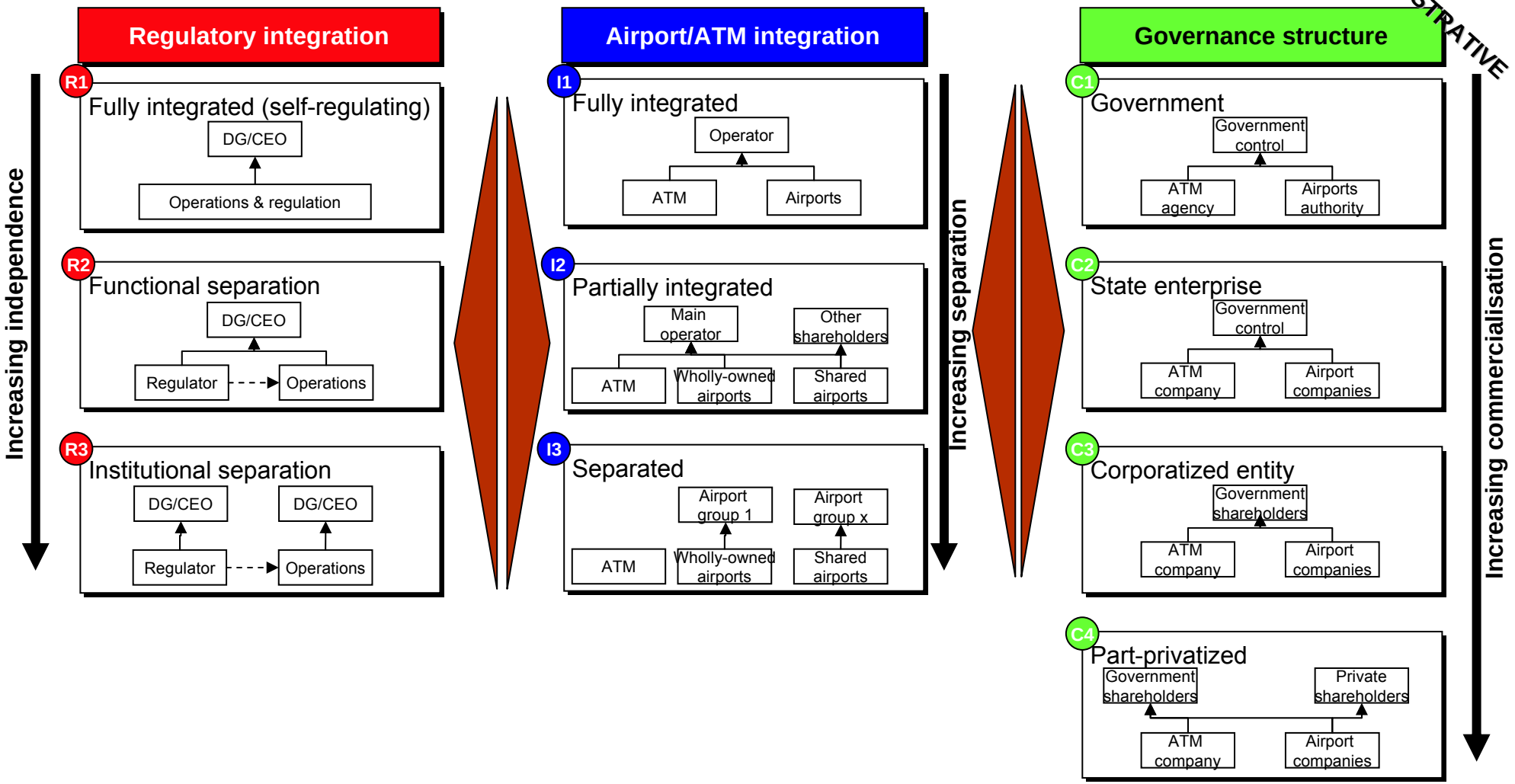
Source: Based on BAH project experience in aviation environments

However, Booz Allen Hamilton believes that the characteristics of air transport infrastructure operators should be classified more broadly along three main dimensions

- **Dimension 1 – integration of (safety) regulation and operations**
  - no separation
  - functional separation, i.e. different reporting lines within a single organization
  - institutional separation, i.e. separate organizations responsible for operations and regulation
- **Dimension 2 – integration of airport and air traffic management operations**
  - fully integrated, i.e. all ATM and all airports owned and operated by one organization
  - partially integrated, i.e. majority of ATM and airports owned and operated by one organization
  - independent organizations operating ATM and airports
- **Dimension 3 – governance structure**
  - government – either as an internal department or subservient agency
  - State corporation, i.e. a company set-up under a special law
  - State owned enterprise, i.e. a company set up under normal company law
  - (part-)privatized

This characterisation suggests the possibility of a range of generic structural models

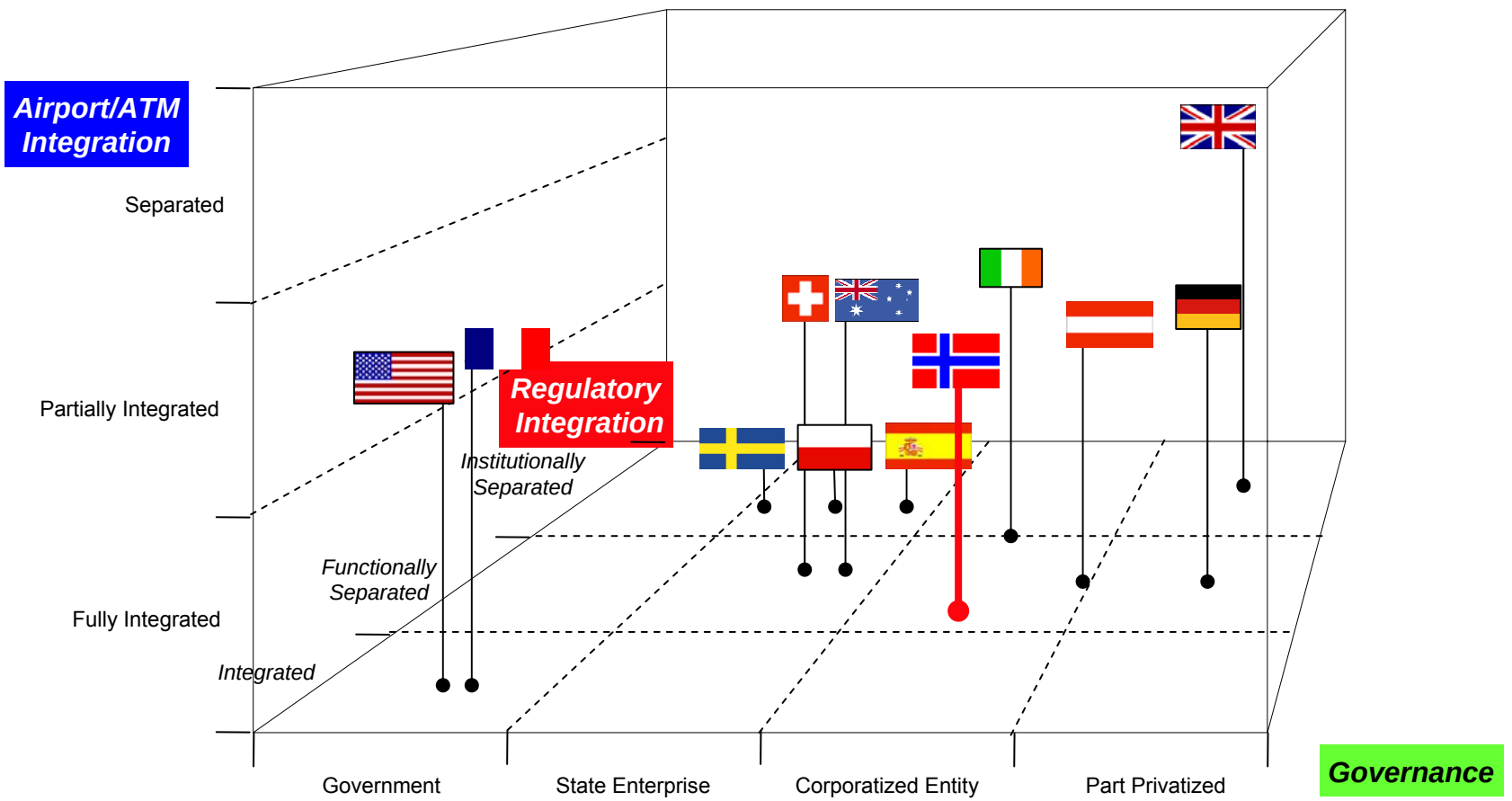
ILLUSTRATIVE



Note: ATM and airports may be operated as divisions within one company as is the case in Norway, Sweden, Spain and Poland

Examination of current arrangements around the world indicates that a limited number of the structural options exist in reality

Categorization of countries along three dimensions



The overall industry structure can be characterised by a few models selected to cover the entire range of the dimensions

Case Example	Regulatory Indepen-dence	Airport/ATM Integration	Governance	Rationale for selecting case example/Comments
Poland (similar Spain, Sweden)	High	High	Medium	Poland has a high degree of integration between ATM and Airport Operations and has recently investigated organizational future. Sweden and Spain resemble a similar organizational set-up.
Ireland	Medium/high	Medium	Medium	ATM and airports operated as separate State-owned commercial companies. The Irish Aviation Authority (IAA) is responsible for ATM provision (en route and terminal services) and airline/airport safety regulation. ATM regulation assured through independent audit of IAA by the Department of Transport. Independent economic regulation of airports and ATM (terminal services) performed by the Commission for Aviation Regulation (CAR)
Switzerland (similar AUS, NZ)	High	Medium	High	Aviation sector has undergone a significant debate about safety and the separation of safety related and policy related activities – mainly targeted towards the CAA (FOCA); state of the art SRM in implementation.
Germany	High	Medium	Very high	ATM provider in the process of being privatized; economic regulation with highest degree of transparency underway. En route and terminal services at major airports are provided by the national provider. Airports are operated as commercial companies through public private partnerships.
UK	High	Low	Very high	Fairly advanced with respect to governance; highest degree of "competition" in ATM (e.g. separation of en route and terminal services). All airports operated on a commercial basis as private companies, for profit, Most are privatized. Highly transparent economic regulation protects the consumer & mimics competition. Safety assured by independent regulator

Framework

- Basic aviation statistics, (compared to Norway)
- Institutional arrangements
- ATM performance
  - safety
  - delays
- ATM cost effectiveness
- Regulatory structure
- Airport ownership and statistics
- Country specific lessons learned

Summary lessons learned – case studies

Summary of lessons learned stemming from the international case examples

Integration of Airport/ATM	Regulation/Operation	Efficiency/Incentive Systems

▸ No particular advantage of having highly integrated structure
  – Weak economic arguments
  – Rigorous transparency requirements
  – Potential distraction from core competencies
▸ En route services are expected to remain a “natural monopoly” while terminal service can be organization in a “contestable” fashion
▸ Separation is usually very difficult and takes time
	▸ Highest degree of separation of regulation and operations is considered best practice
	▸ No trade-off between safety and other service parameters
	▸ If separation is not possible very complex institutional arrangements have to e put in place (avoid conflict of interests)
	▸ Economic regulation (e.g. price-caps) is increasingly put in place where profit motivation is given in order to protect rights of users and to set efficiency incentives
		▸ State-owned enterprises and private companies can perform equally well – as long as effective incentive systems are put in place
		▸ Regulatory structure must contain controls and incentives (market based or regulatory)
		▸ ATM as well as medium sized/large airports can be self sustaining commercially

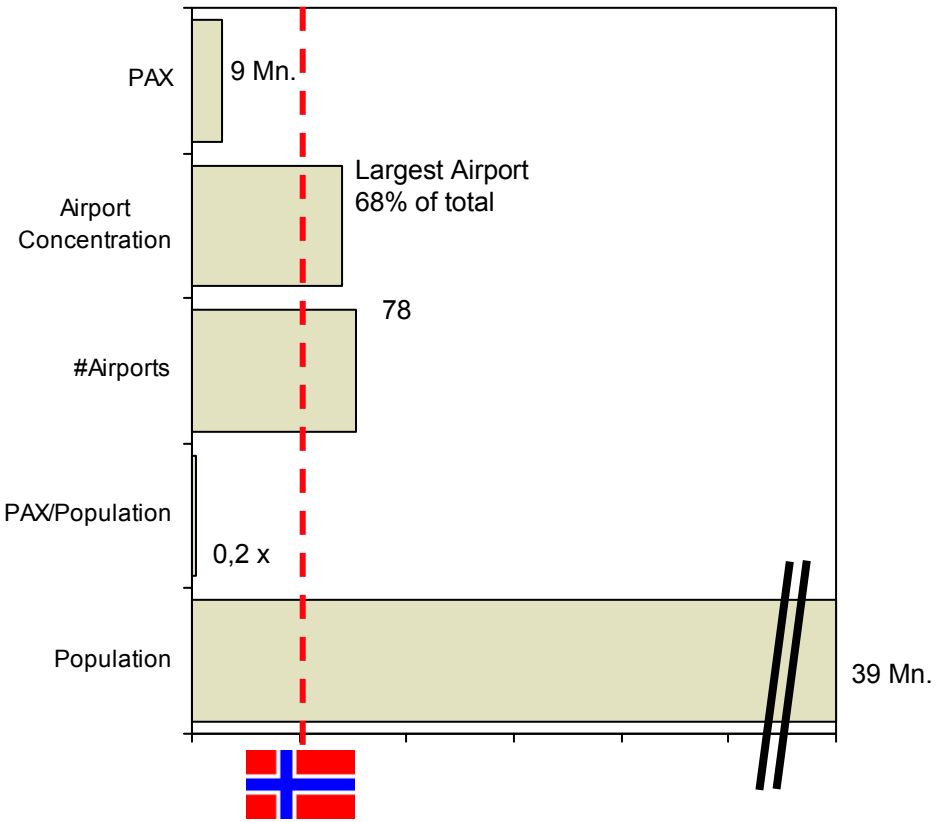
Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

Poland's aviation sector is still far below the Norwegian level but it experiences double digit growth

Comparison of Sectors in Poland and Norway

Traffic, Geography, Demographics

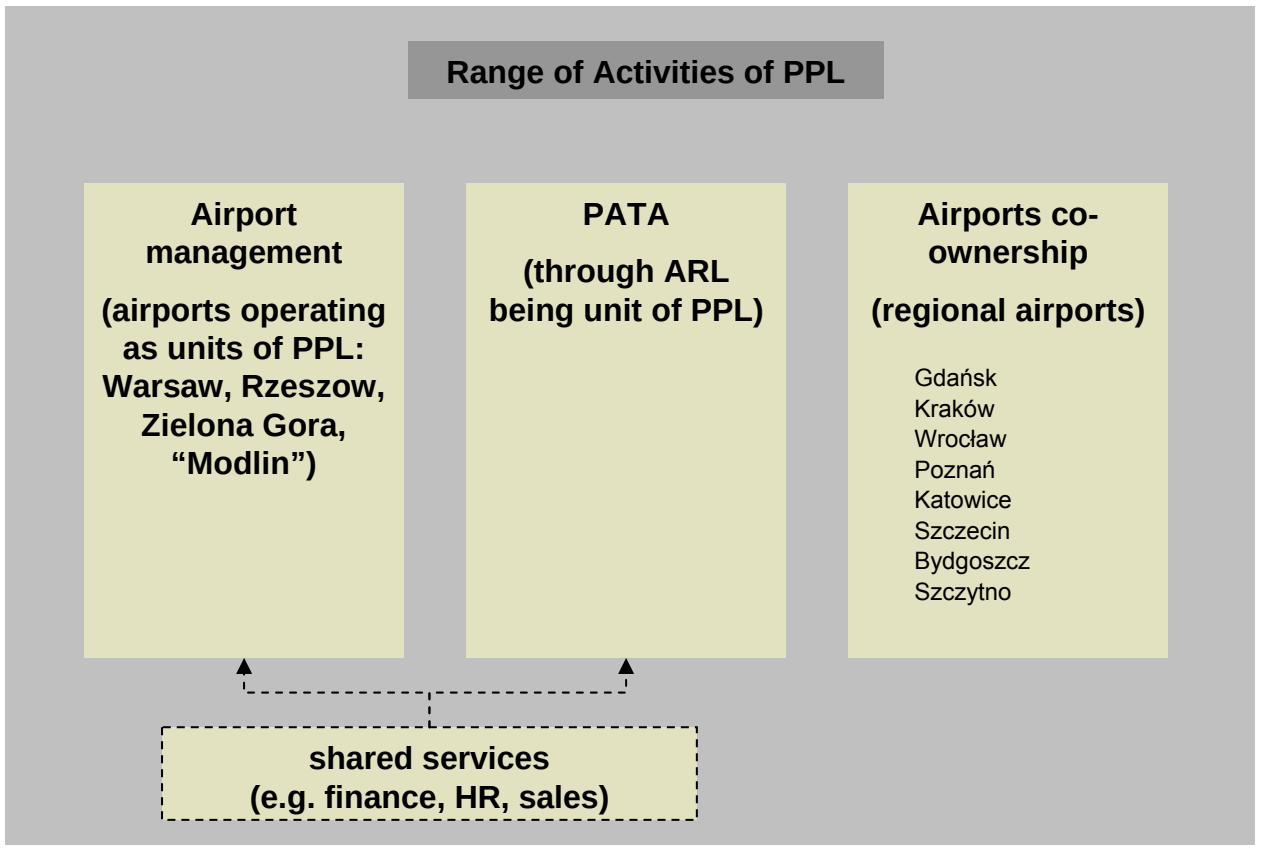


Source: Annual Reports, Statistical Yearbooks, Internet

Organizations (CAA, ATM, Airports)

- Situation in Poland fairly comparable to Norway in terms of organizational set-up
- Dynamics of both markets, however, are very different
  - **Traffic has grown by 25% (between 2003 and 2004)**
  - National traffic gains importance due to insufficient rail and road infrastructure
  - Economic growth impacts positively general development of the aviation sector
  - LCCs discover Poland as a new market
- Similarly to Norway the traffic volume is highly concentrated on the capital (Warsaw airport accounts for almost 68% of total passenger volume)

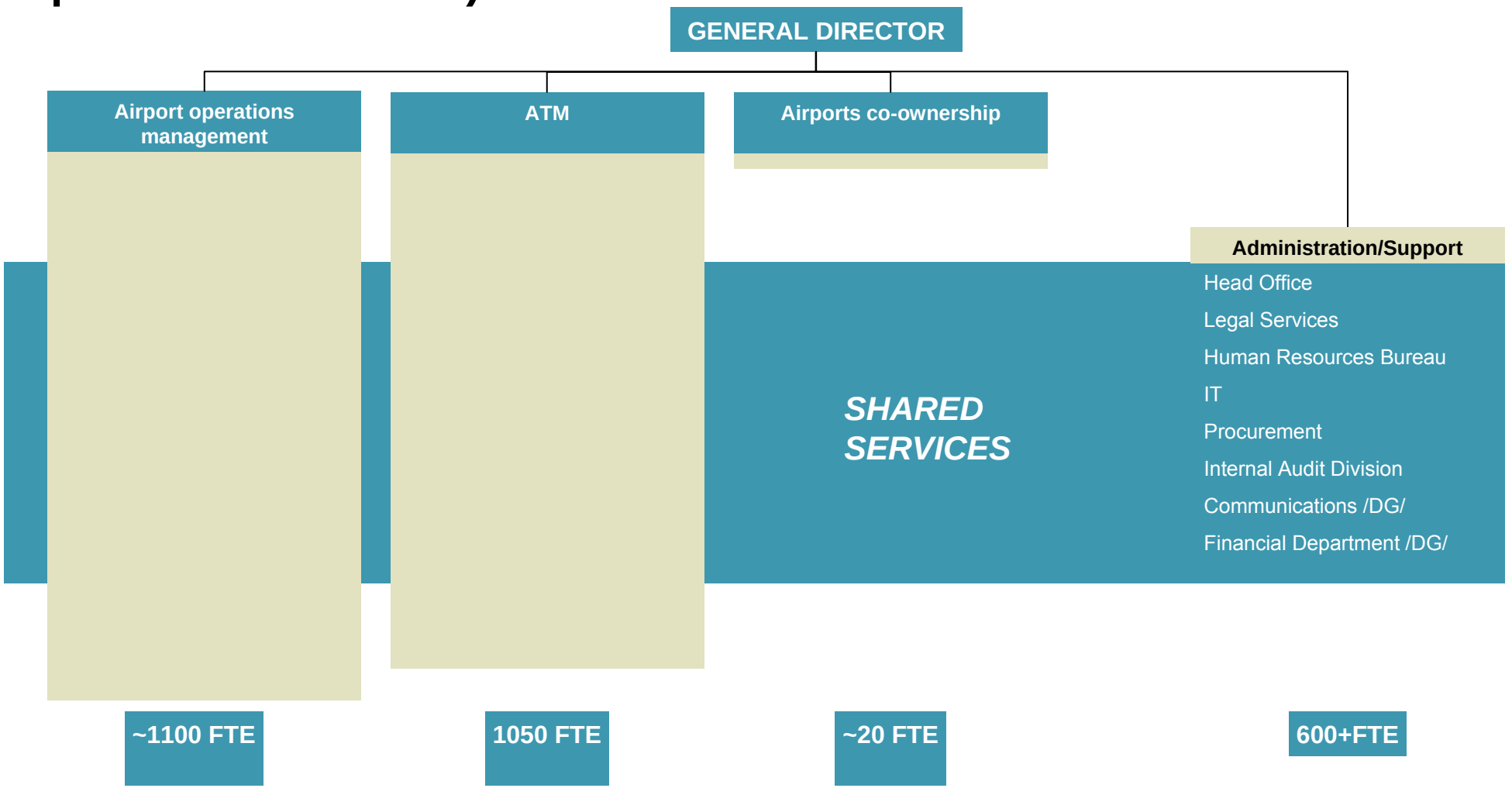
In Poland both airport operations as well as ATM is provided by one company – Polish Airport State Enterprise



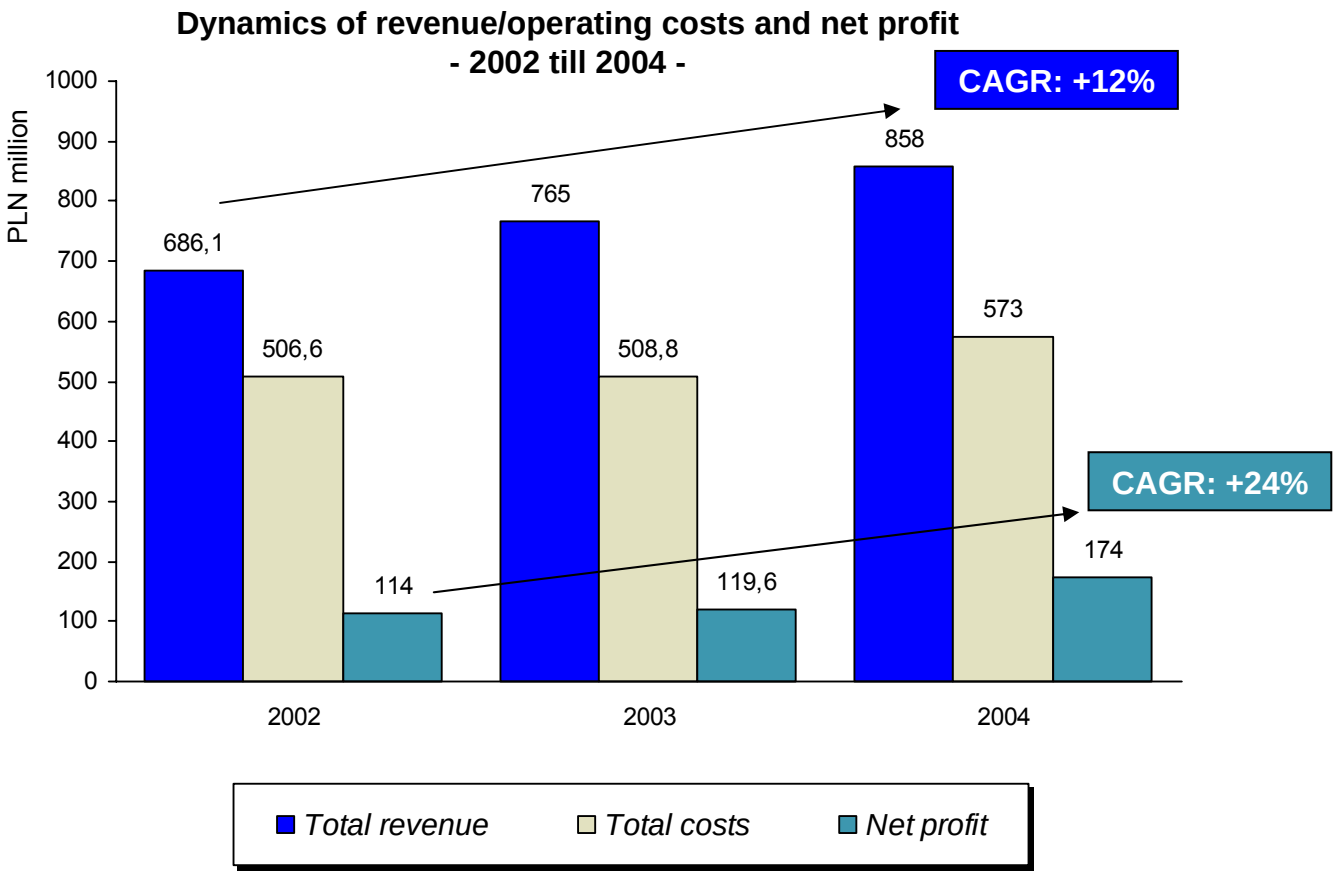
History and Description of activities

- Established in 1987
- Company constructs and operates commercial airports, renders services to Polish and foreign carriers, provides services to airline passengers and develops air navigation facilities
- Polish Air Traffic Agency is a part of the company and deals with air traffic control in the Polish airspace
- Polish airports provide full scope of aircraft, passenger and air mail handling; these activities are performed by highly specialized companies (most of the majority stockholdings of PPL)

A number of administrative departments render shared services to airport management and ATM – in total 600+ FTEs (about one quarter of total staff)



PPL has significantly increased its profitability in 2004 – ATM profitability might lead to increased awareness and scrutiny regarding excessive charges



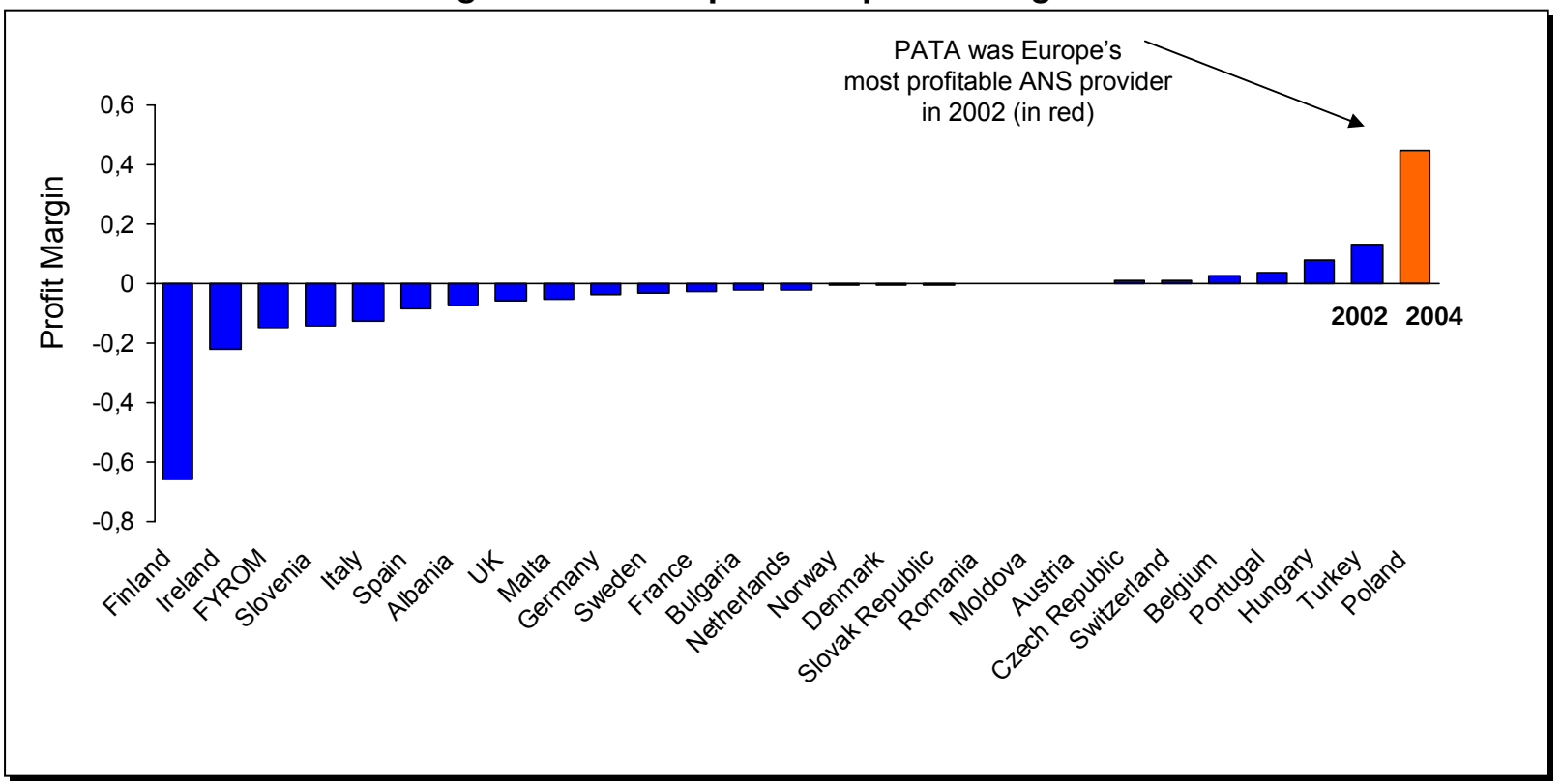
Issues and open questions

- 52% of PPL's revenues stem from ATM, the split rises over proportionally
- Total Profitability of PPL: 20% (Net profit/sales
- ATM part (BAH estimate): 25-30% (based on reasonable cost allocation assumptions)
- This also indicates a significant ATM-profitability as shown in publicly available benchmarking reports
- To be investigated: to which extent is profitability due to operational efficiency and low salary levels in Poland vis-à-vis economies of scale in the area of shared services

Source: PPL annual reports

In 2002 the ATM business of PPL was the most profitable compared on a European level – this has increased potentially further

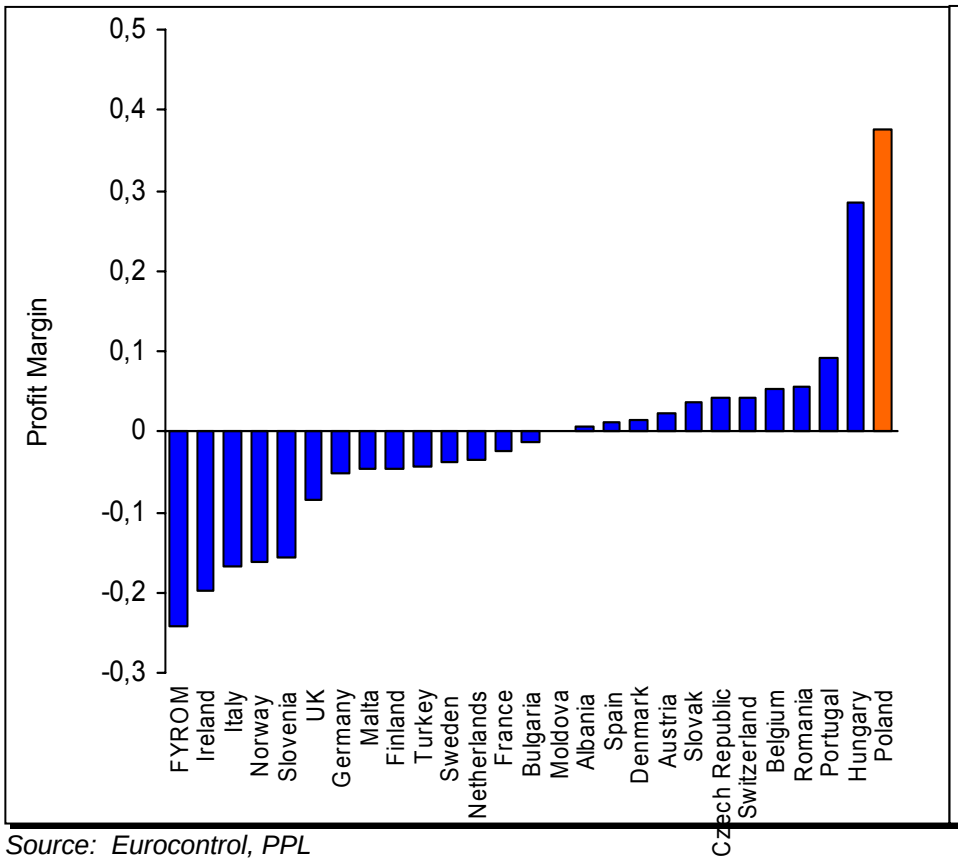
Air navigation service provider profit margins for 2002



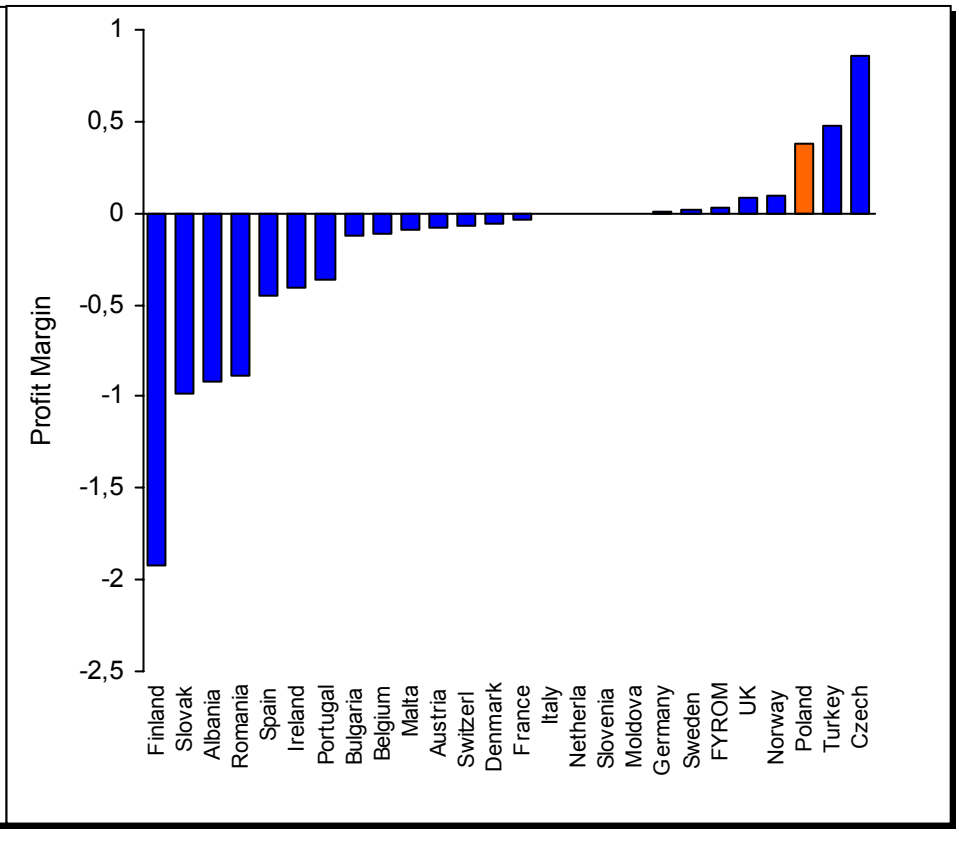
Note: ANS costs and revenues may include MET costs, payment to Maastricht, and revenues from the military and domestic government
Source: ACE 2002 Benchmarking Report Eurocontrol

These high profitability levels can be observed both for en route and terminal business

Profit margin for en route CNS/ATM services in 2002



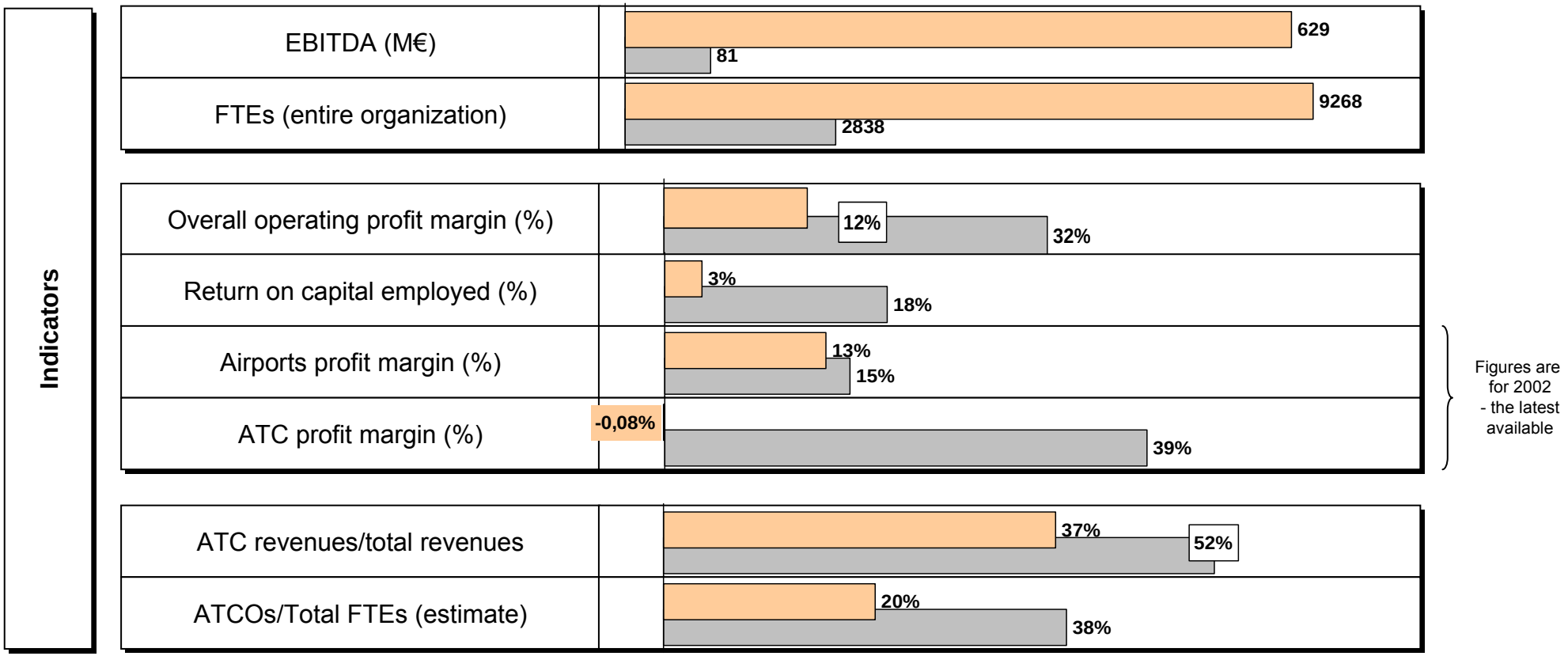
Profit margin for terminal CNS/ATM services in 2002



Source: Eurocontrol, PPL

Efficiency from sharing services and scale appear to have limited impact: PPL is much more profitable than the much larger Spanish AENA with a similar integrated organization

Comparison of financial indicators for PPL and AENA for 2004 (segment data 2002)



Source: AENA annual report, PPL Annual Report, Eurocontrol
Note: Segment data is from 2002 – the latest currently available

A number of lessons learned can be derived from the Polish example

Lesson Learned 1	− **Economies of scale** as well as **sharing services** are usually difficult arguments for the integration of totally different businesses within one organization (22% FTEs in overhead functions clearly above average) − Individual units (ATM and Airport Operations) might be large enough to justify individual and separate support services
Lesson Learned 2	− Transparency requirements might force the organization to increase the separation – there was also a debate before 2005 with the ministry − ***"The accounts of all air navigation services providers should provide for maximum transparency"*** – Service Provision Regulation 550/2004
Lesson Learned 3	− Integration of Airport and ATM is potentially beneficial for the **general development of the airport sector** (policy considerations), particularly if the sector is highly growing and new infrastructure projects are required (new terminals, funding, new airports) − Political impact is significantly higher than in separate organizations
Lesson Learned 4	− **Safety** is not affected by the integration, since there is no interaction between the two divisions − Shared services are only related to administrative and supports activities (HR, procurement, IT etc.)

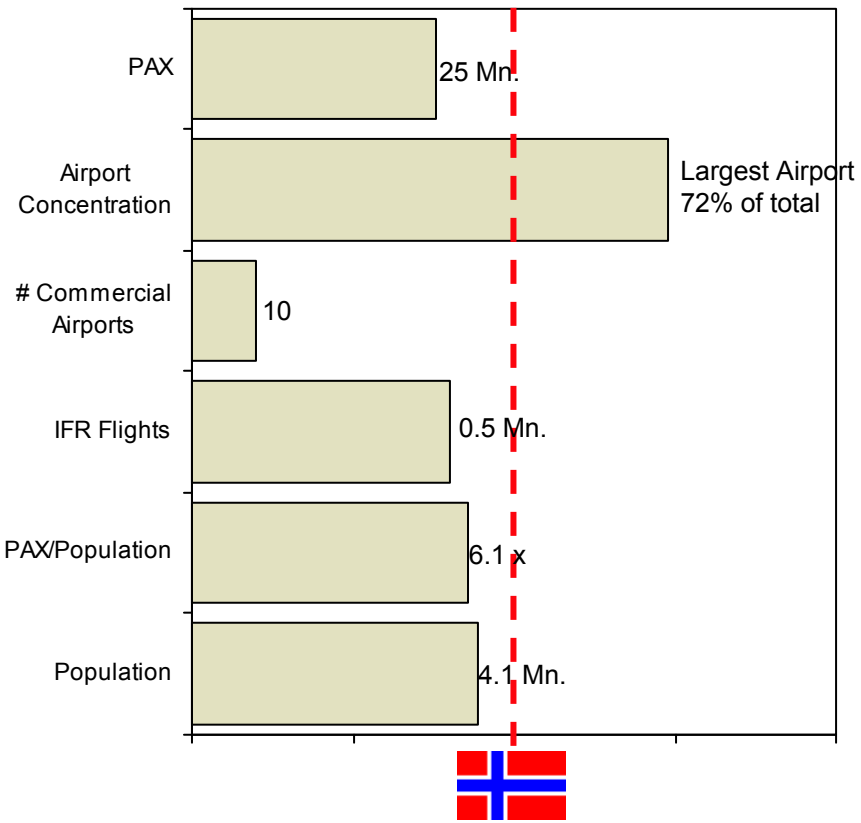
Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

The demographic situation in Ireland is not dissimilar to that in Norway noting the difference in size of the two countries

Comparison of Aviation Sectors in Ireland and Norway

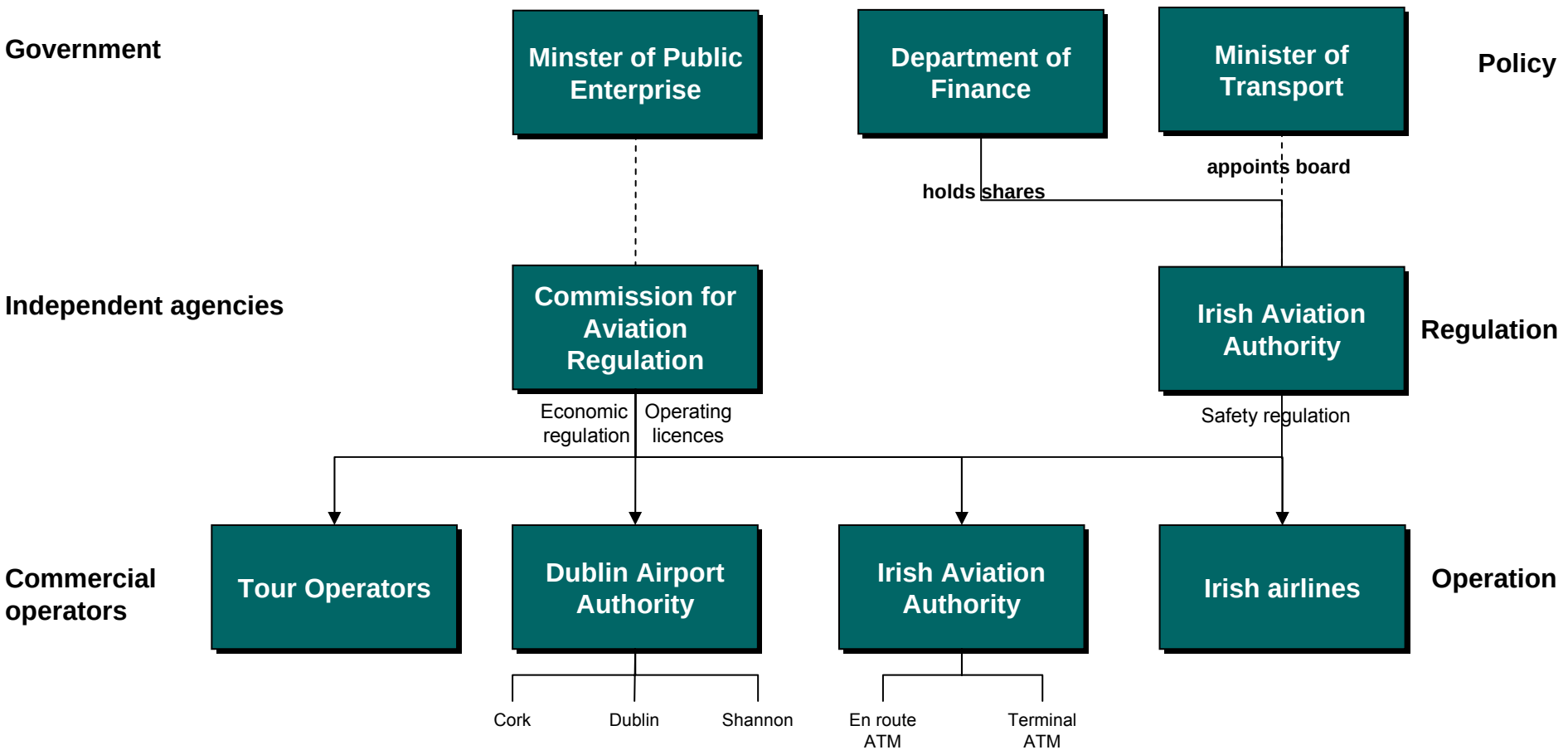
Traffic, Geography, Demographics



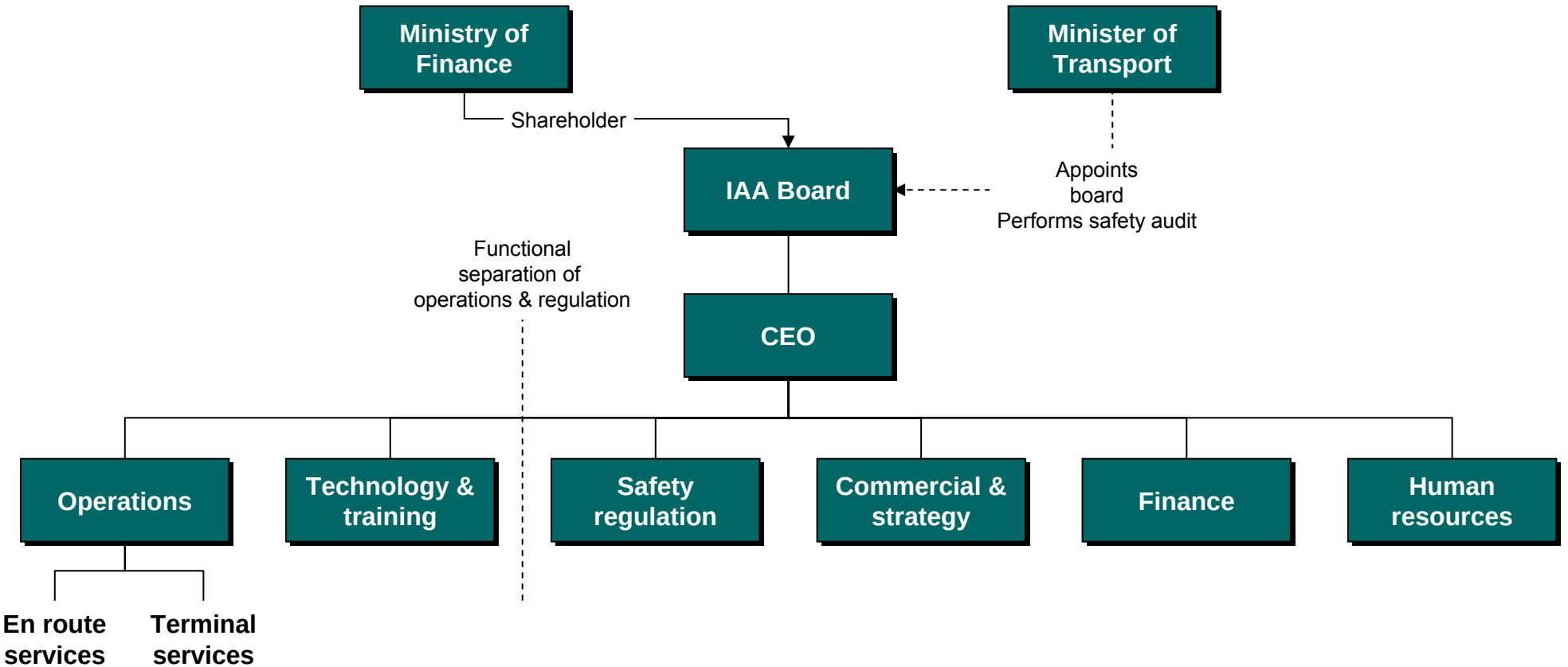
Organizations (CAA, ATM, Airports)

- The ATM provider for both en route and terminal services, the Irish Aviation Authority (IAA) also acts as safety regulator for airports, airlines and ATM
- Safety regulation of ATM is covered by a statutory requirement for the government to undertake a periodic independent audit of the IAA
- The IAA is run as a corporatized, State-owned company
- The main airports are run by the Dublin Airport Authority – also a State-owned company although there are plans to split up the group
- Economic regulation of both airports and ATM is performed by the independent Commission for Aviation Regulation (CAR)
- Around 72% of traffic is concentrated at the largest airport - Dublin

The institutional arrangements for civil aviation in Ireland are quite complex



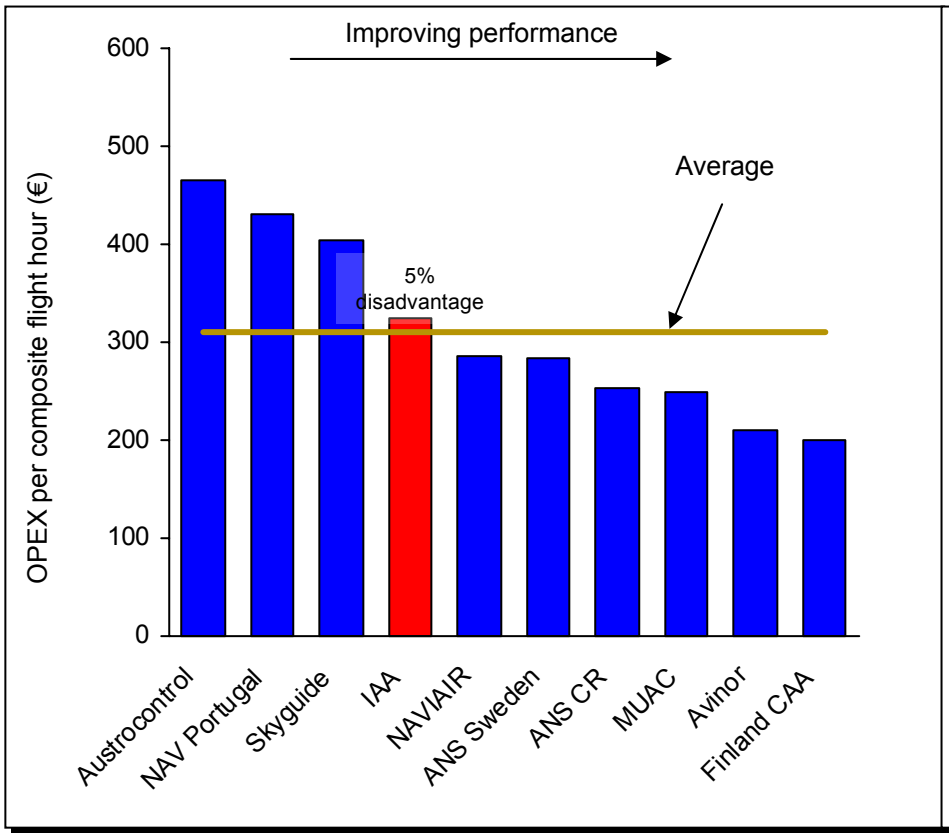
The IAA, a State-owned enterprise, is responsible for safety regulation as well as providing ATM services



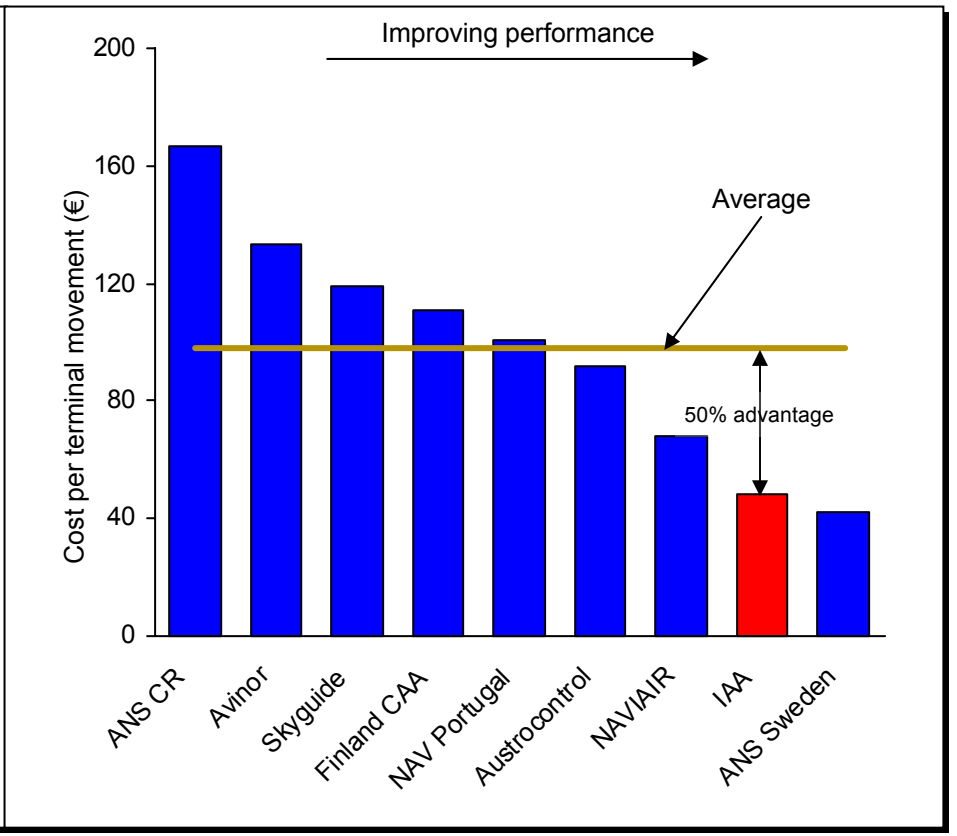
The IAA has the statutory responsibility for providing both en route and terminal ATM services

Amongst medium-sized providers, IAA efficiency is around average for en route services but much better than average for terminal services

Operational cost per en route flight hour, 2003



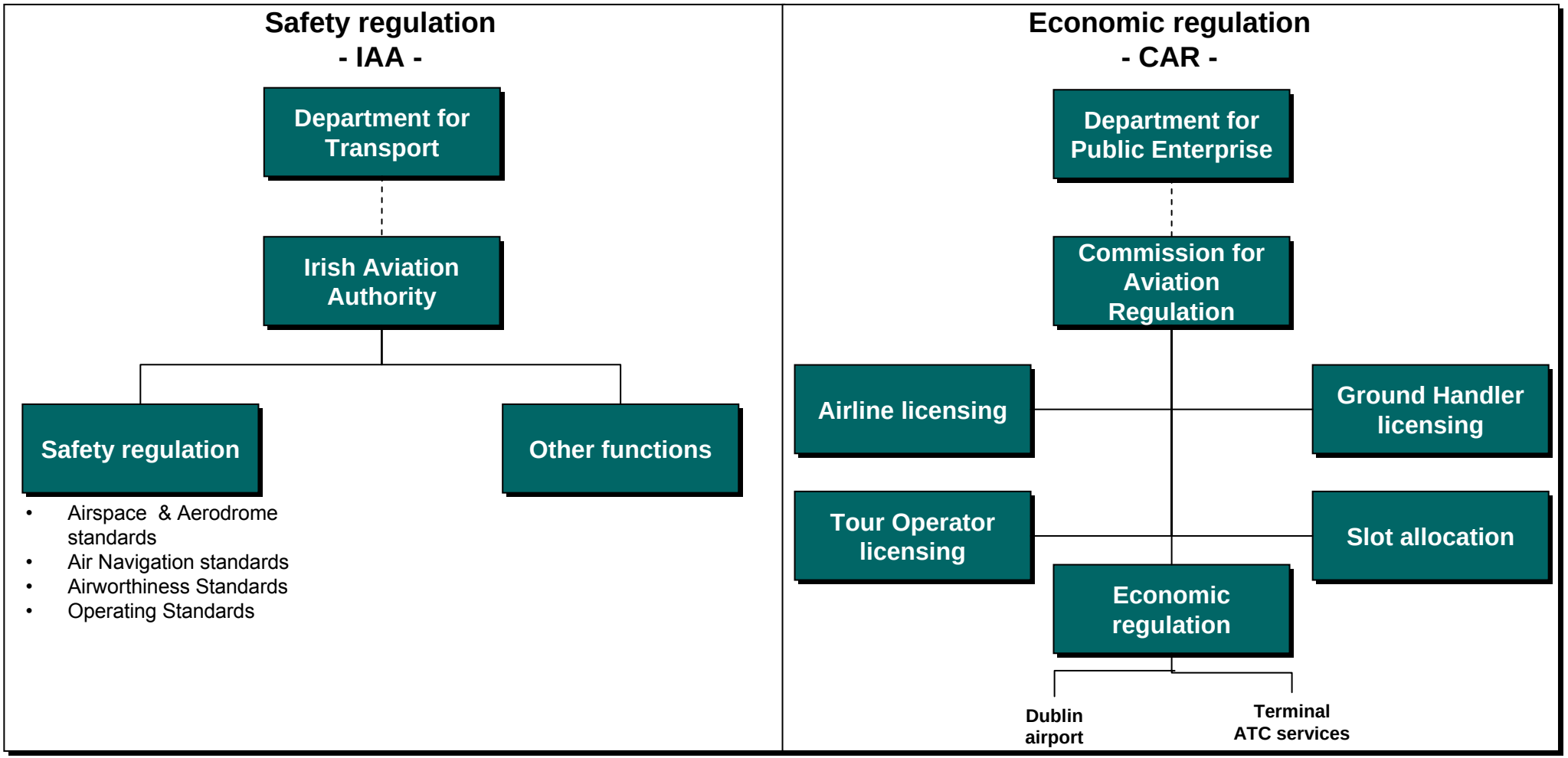
Operational cost per terminal movement, 2003



Source: Eurocontrol PRU ACE report 2003

Aviation regulation within Ireland is split between the Irish Aviation Authority and the Commission for Aviation Regulation

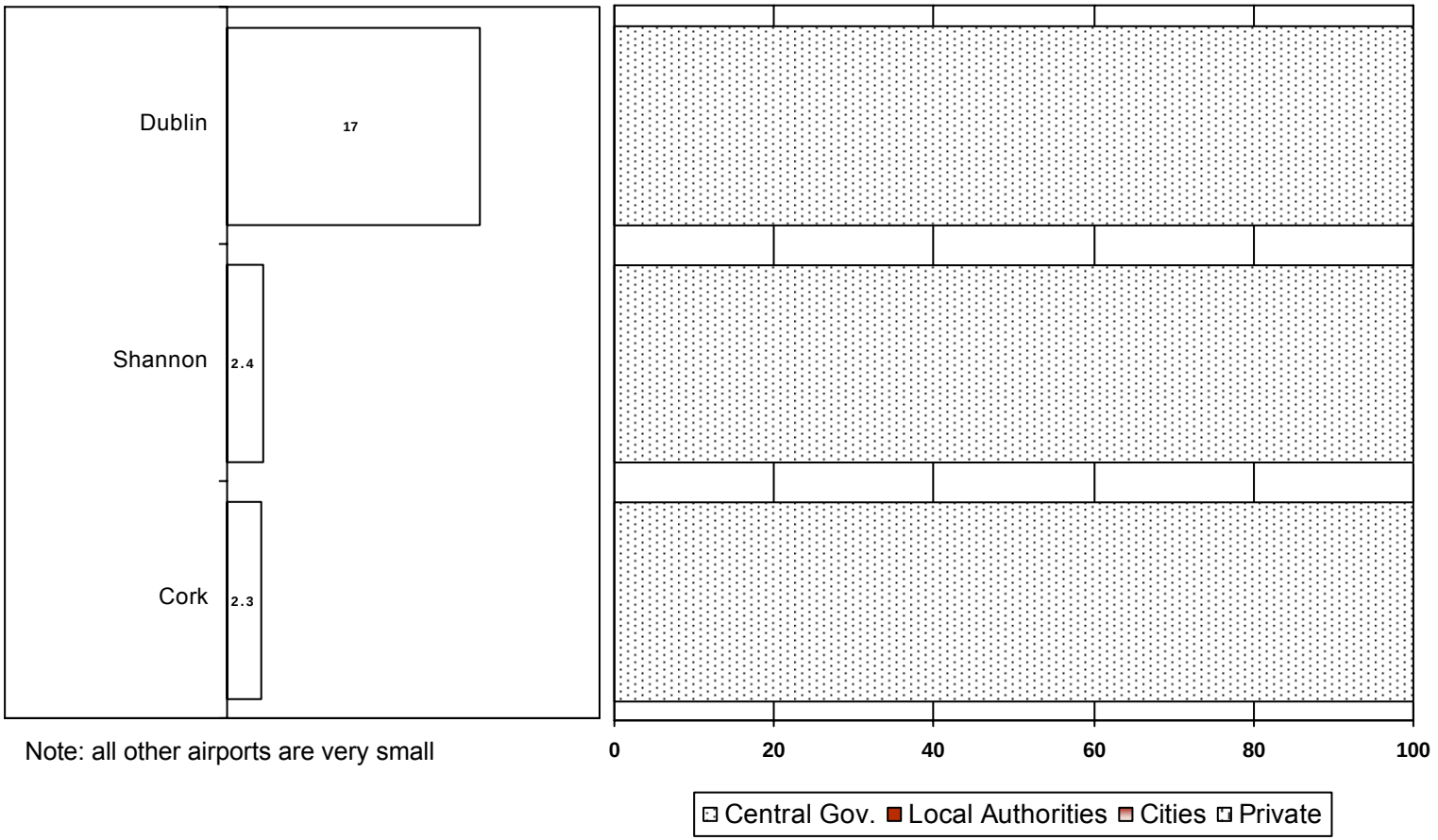
Regulatory structures in Ireland



The main airports in Ireland are all owned solely by Central Government but operated as commercial companies

Size and ownership structure of major airports in Ireland

(in Mn. Passengers (2004) and % of equity)



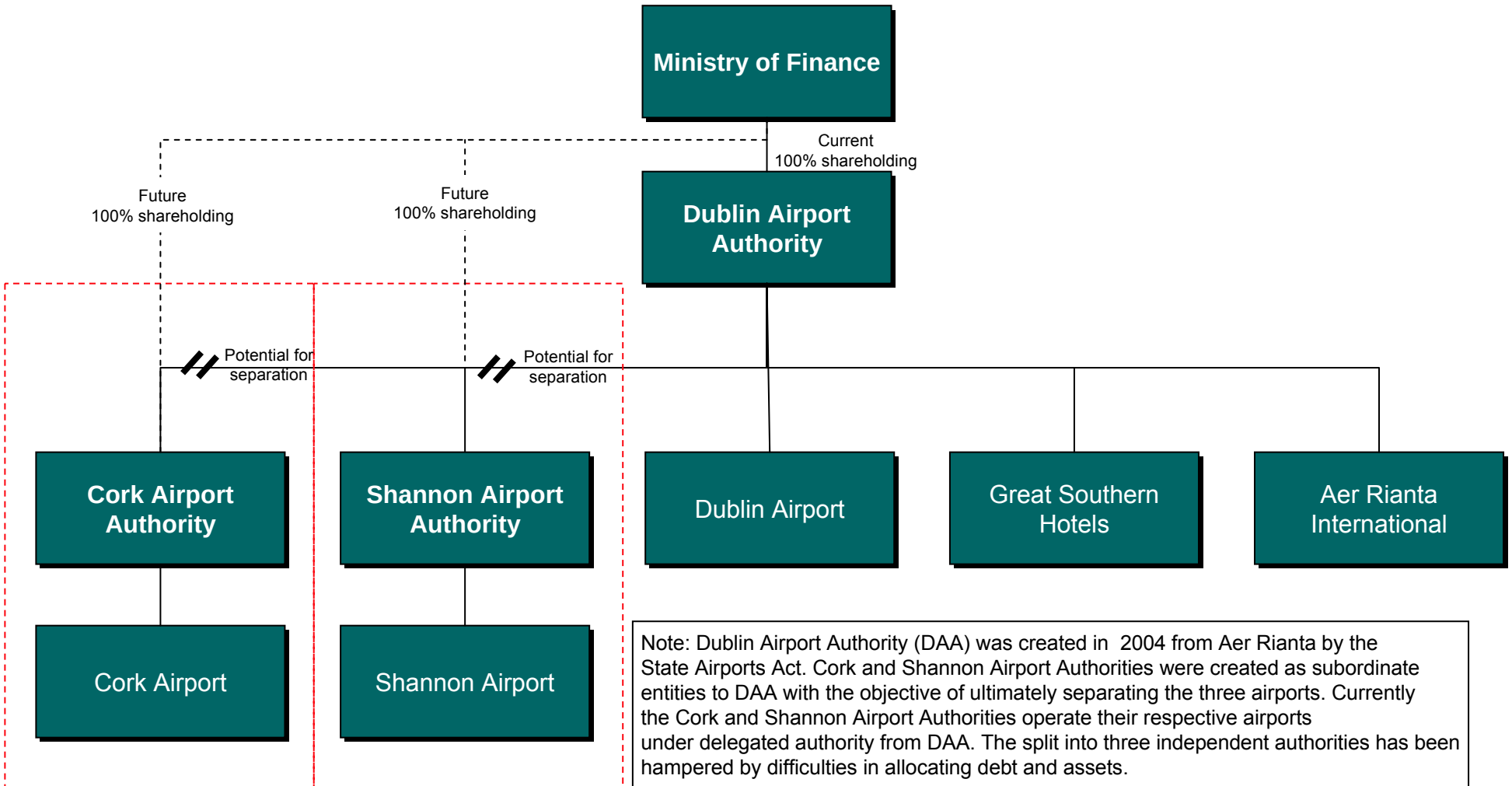
Note: all other airports are very small

Overall Ownership Structure of Sample:

Central Govern.: 100%
Other Govern.: 0%
Privately held: 0 %

(weighted with passengers)

The ownership structure of the main airports has been established to facilitate the potential future splitting of the group



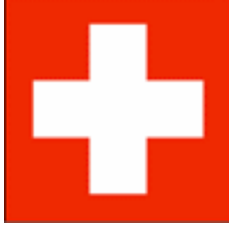
Note: Dublin Airport Authority (DAA) was created in 2004 from Aer Rianta by the State Airports Act. Cork and Shannon Airport Authorities were created as subordinate entities to DAA with the objective of ultimately separating the three airports. Currently the Cork and Shannon Airport Authorities operate their respective airports under delegated authority from DAA. The split into three independent authorities has been hampered by difficulties in allocating debt and assets.

Government ownership may have contributed to political concerns inhibiting otherwise straightforward decisions on efficiency and capacity

- Long drawn-out deliberations have impeded the construction of badly needed terminal capacity at Dublin Airport
  - original proposals involved the airport building and operating a low cost terminal in competition with a privately built and operated terminal
  - additional capacity will not be available until 2009 at the earliest when it was needed around 2003/4
  - temporary arrangements mandated by the Minister of Transport were never implemented
  - a complex arrangement is in place whereby the Airport will design and construct the terminal but its operator will be selected by public tender
- Employment terms and conditions, including remuneration, for existing employees have been guaranteed at government level
  - the State Airports Act 2004 gives assurances
  - it is rumoured that “letters of comfort” were sent to Aer Rianta employees prior to the reorganization to the Dublin Airport Authority

Ireland lessons learned

Lesson Learned 1	− ATM and airports can be operated successfully and efficiently on a commercial basis as State-owned enterprises − As the ATM and airport operators are driven by commercial considerations, e.g. profit, an economic regulatory regime is needed − Correctly designed regulation has been used to incentivize efficiency
Lesson Learned 2	− Political interference in the State-owned airport companies has inhibited development of both efficiency and capacity
Lesson Learned 3	− Splitting an integrated organization into separate infrastructure operators can be complex − It is difficult to assign the debt carried and assets fairly between the separated entities − Although such a split my bring benefits of focus, there may be diseconomies of scale in shared services
Lesson Learned 4	− Complex organizational and audit solutions need to be applied when institutional best practice is not followed in terms of separation of operations and regulation − Splitting competences between organizations has lead to a complex regulatory structure



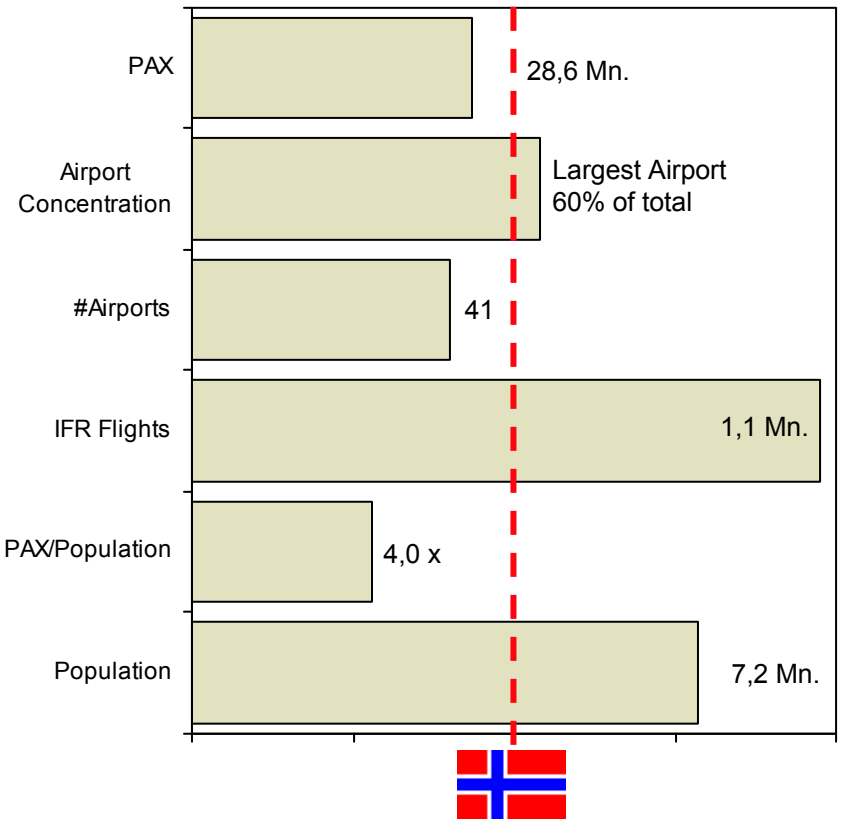
Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

The Swiss Air Space is dense and complex – and fairly comparable to the Norwegian situation

Comparison of Sectors in CH and N

Traffic, Geography, Demographics



Organizations (CAA, ATM, Airports)

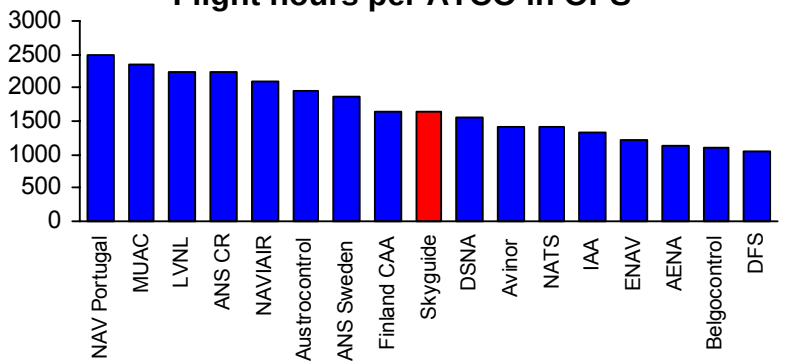
- Situation in Switzerland differs since ATM provider is clearly separated from Airport Operations
- ATM Provider (skyguide) renders services for civil and military – in an integrated fashion
- CAA (BAZL) covers both safety regulation and policy making under one CEO but with clear separation within the organization
- Significant organizational change of CAA has taken place between 2003 and 2005 including a major increase in FTE (more than 30%)
- States (Kantons) hold significant stakes in Airport Operations

As comparisons show skyguide operates fairly efficiently

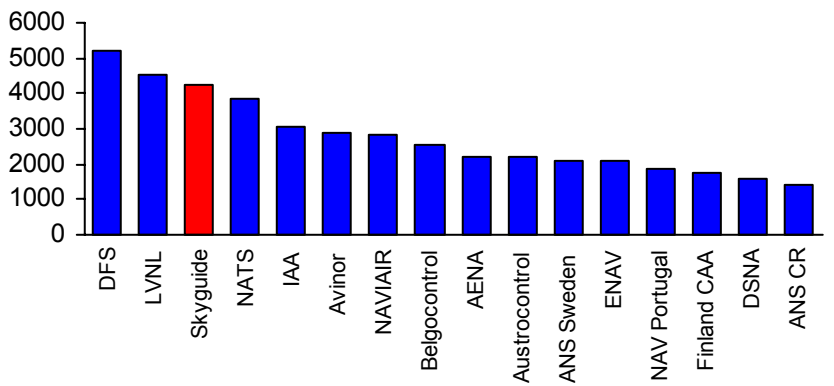
Key Facts and Figures

- History: Although name “skyguide” came into existence not before 2001, a number of predecessor organization was carrying out ATM services independently; financially separate from Swiss Government since 1996
- 1160 Employees in 11 sites
- 2/3 of staff work in Air Traffic Control, 1/4 is dedicated to technical services
- Efficiency is high compared to European ATM providers; high salary level, however, leads to insignificant profits

Flight hours per ATCO in OPS



Terminal movement per ATCO in OPS

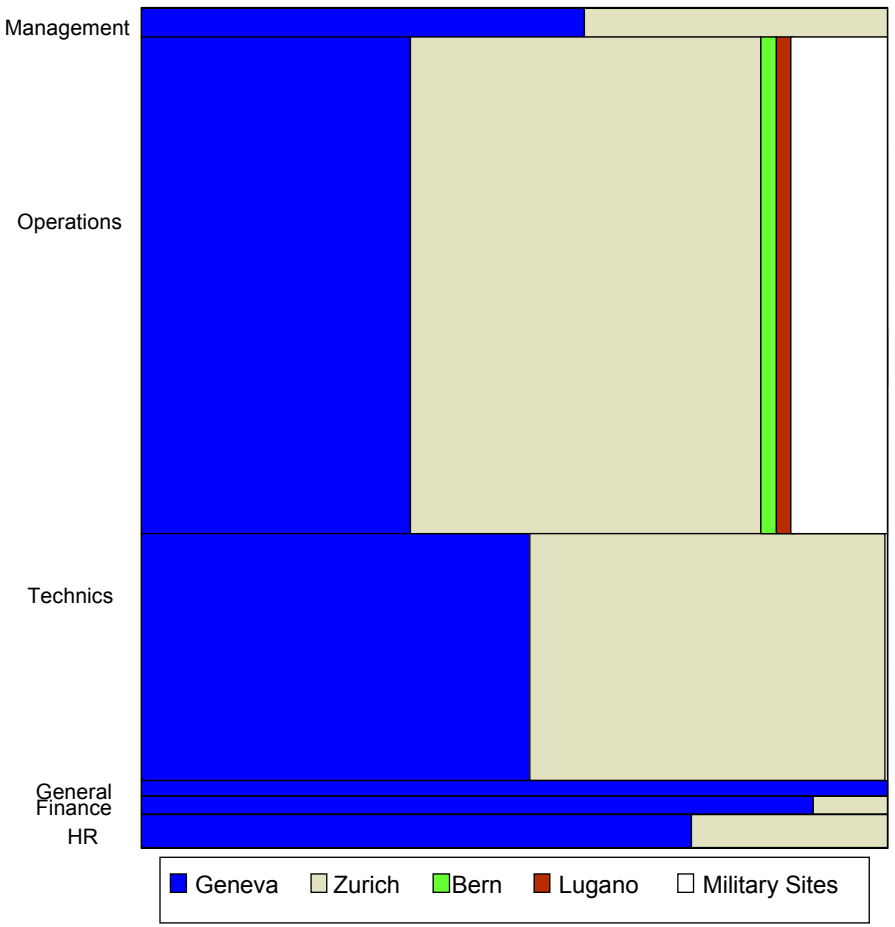


Source: Eurocontrol PRU ACE report 2003

Note 1: Air Traffic Controllers
Note 2: Average for EU countries in the chart based on PPP
Note 3: Differences in exchange rate, that have occurred since 2002, are not taken into account

Main staff of skyguide is concentrated in Operations and Technics and two locations – overhead accounts for less than 9% of all FTEs

Distribution of Employees (Department, Site)



General Characteristics of Organization

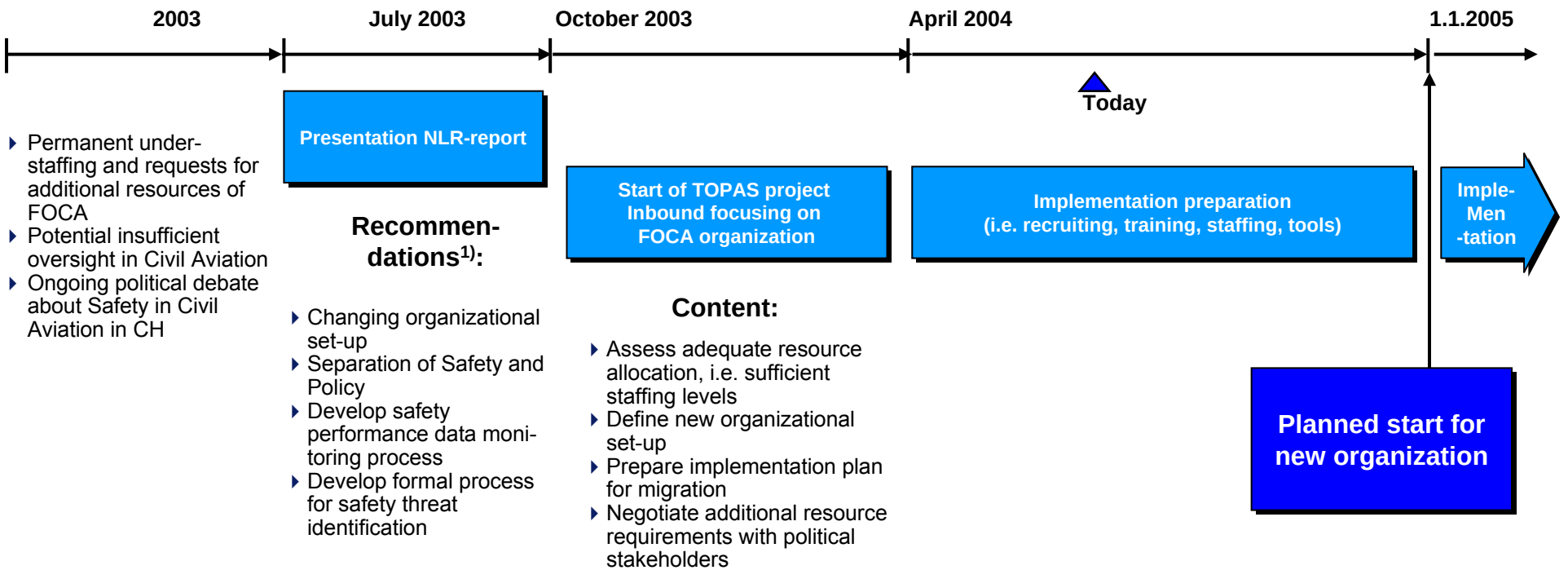
- More than 91% are directly involved in providing services (Operations and Technics)
- 89% Staff concentrated in two locations (Geneva and Zurich)

Challenges of Organization

- Years 2000 till 2004 were focused on quality improvements (delays) – this was completed successfully
- Überlingen Accident investigation issued several recommendations of which many were directed towards ATM provision
- Recently CAA has blocked the further centralization of ATCOs in Geneva; skyguide intended to transfer control of entire upper airspace to single center in Geneva – safety case was not considered convincing by FOCA
- skyguide rather small compared to e.g. DFS in Germany
- Single European Sky will pose additional stress on organization
- Improving financial flexibility regarding investments as well as arrangement with adjacent countries
- skyguide has expressed interest to invest in DFS

In 2003 the Swiss Government/DETEC investigated safety in Aviation – a need for a major organizational change of the CAA (FOCA) came clear

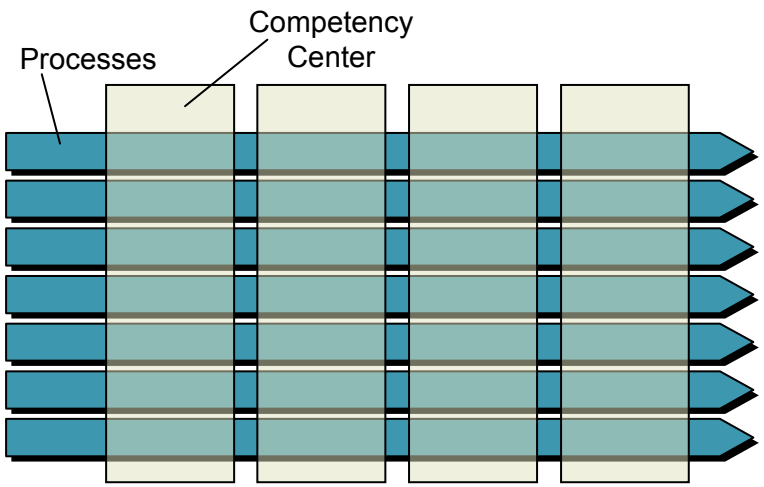
History of organizational change of FOCA



1) In total 28 recommendations geared towards FOCA, DETEC and others

DETEC found the current organization very efficient but too much customer oriented – policy and safety issues were mixed in many processes

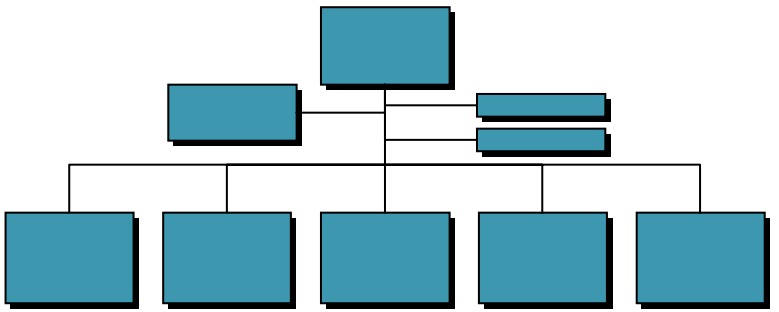
Before 2005



- **Weaknesses:**
- Excessive customer orientation blurred line between authority and service provider for industry players
- Lack of coherent leadership and guidance
- Little coherence between processes
- Problems in communication and know-how transfer, insufficient cooperation

Organi-zational Transfor-mation

As of 01.01.2005

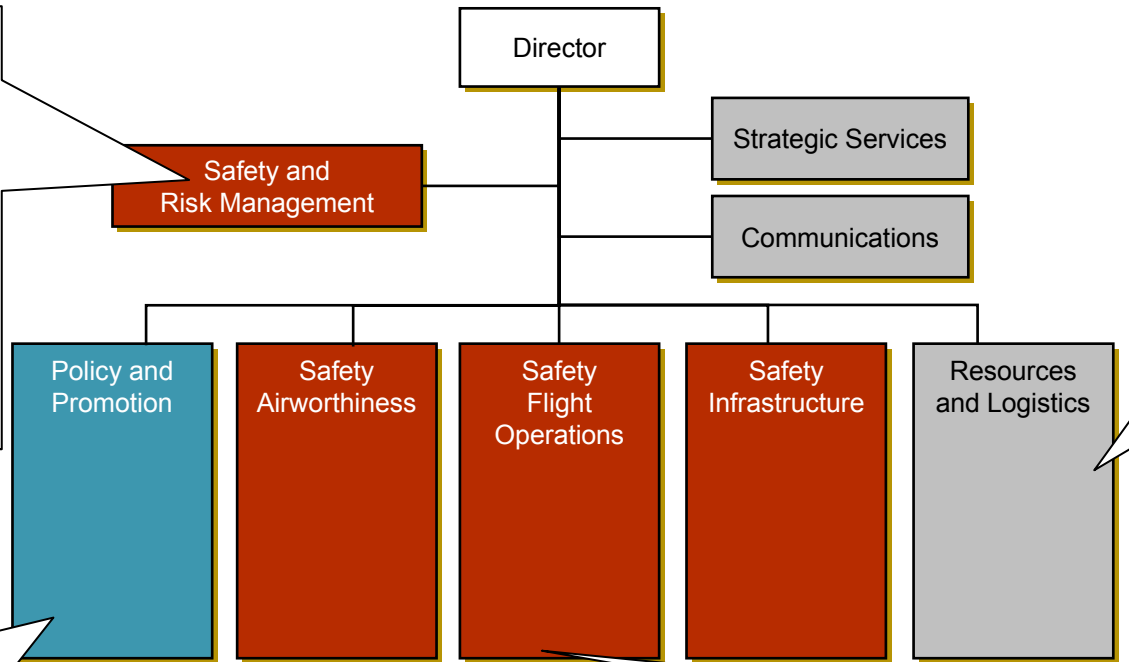


⑦ Guiding Principles

1. Enhance Safety
2. Maintain Efficiency
3. Assure Effectiveness
4. Add Transparency
5. Enhance Leadership/"Manageability"
6. Create Innovativeness ("ready for the future")
7. Assure compliance with international regulations and evolution

Hence the new organization fully reflects a clear distinction between policy and safety issues – shared services are used by all departments

- Overarching activity covering Data Monitoring and Risk Management Tasks
- Risk assessment, i.e. coordination and assessment of risk assessment activities, validations and tracking
- Developing recommendations

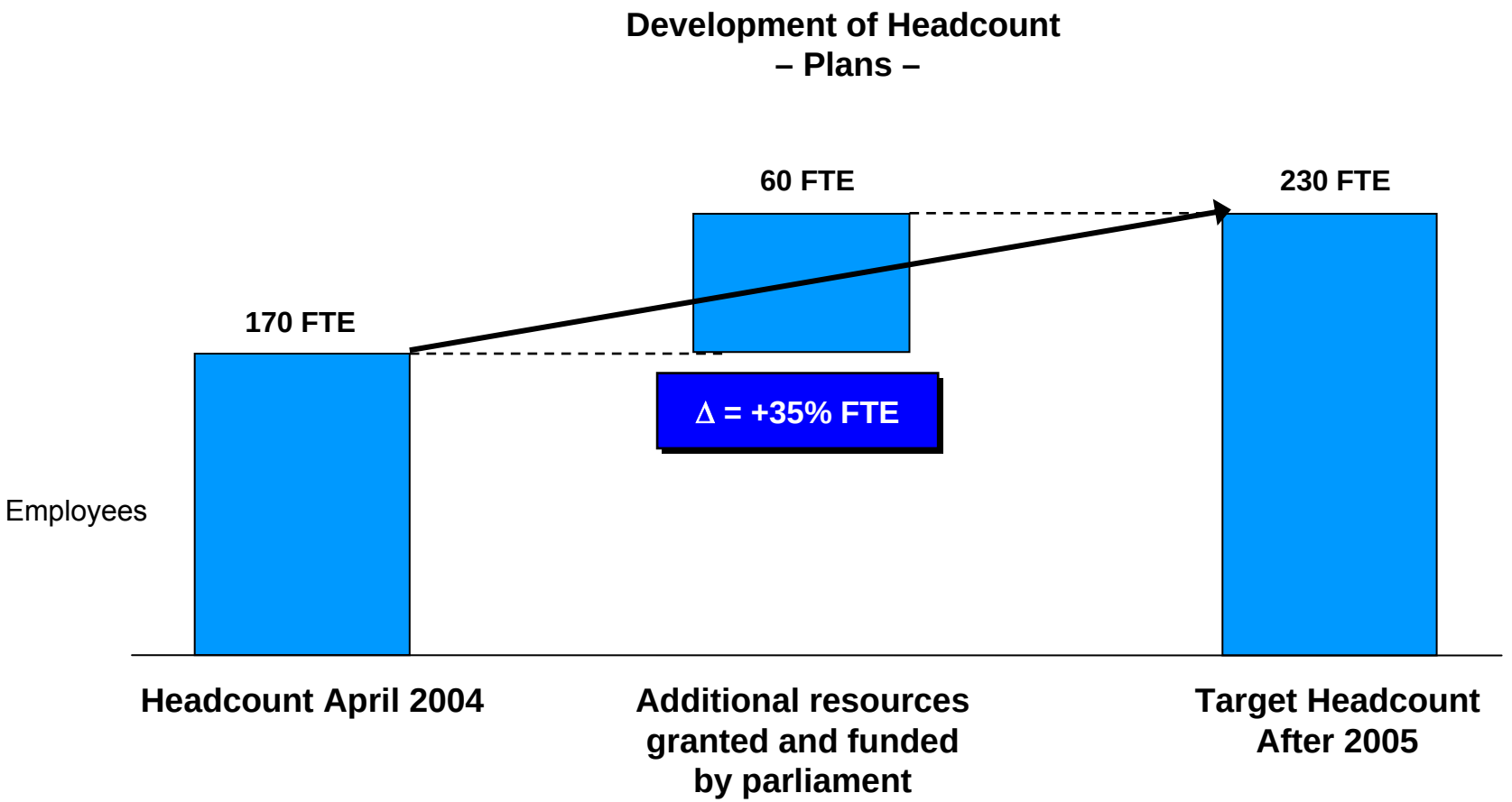


- Shared services include essentially office management, IT-services, Human Resource Management; Logistics
- Strategic Services and operational activities

- Core Services for the promotion of aviation in Switzerland
- Developing overarching strategies
- Covering legal and environmentally affairs
- Sectoral Plans and facilities
- Economic Oversight and Regulation
- Most of the services provided are not related to safety

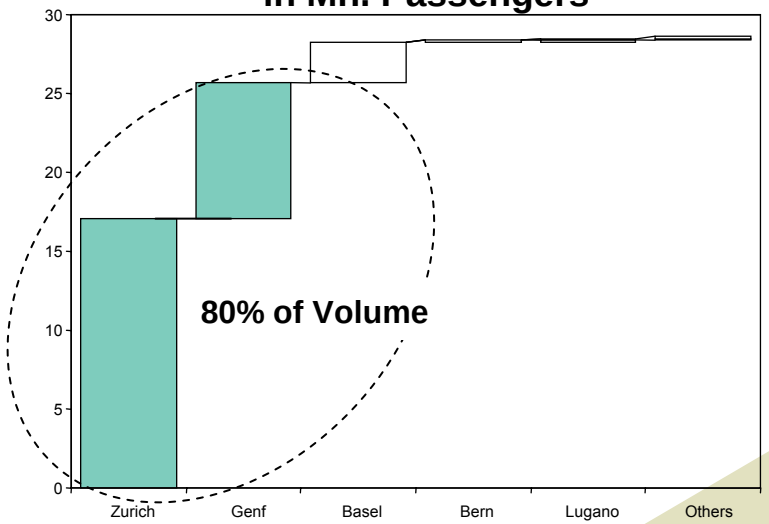
- Core Safety Activities are distributed among three streams (Material, Operations and Airspace) to create balanced organizational units
- Activities include both certification activities as well as safety inspections and audits, air safety surveillance

Additionally, FOCA has increased staff by more than a third to fully reflect the increased demand by the aviation sector in Switzerland



In Switzerland there are only two significant airports: Zurich and Geneva – all others have not even a dominating market share within their Kantons

Airport Concentration in CH
– in Mn. Passengers –



Zurich Airport

- Ownership: Majority stakeholdings by State of Zurich and Kanton Zurich
- Size: 17,1 Mn. passengers p.a. (expected to grow to 32 Mn. By 2020)
- Challenges:
  - Zurich is expected to maintain position as major hub in CH and high share of transfer passengers in the next decade (Assumption: Swiss will continue as brand within the Star Alliance/ Lufthansa)
  - However, size will not be comparable to Frankfurt or Paris
  - Positive effects to capacity constraints in Frankfurt → Zurich as second major hub for Lufthansa until 2010

Geneva Airport

- Ownership: Kanton Geneva
- Size: 8,6 Mn. passengers p.a.; 167.000 Movements p.a.; expected to grow to 14-15 Mn. passengers by 2020
- Profitability: Net margin of 12-13% (2004/3)

Safety is an excellent vehicle to argue for organizational change – if safety level has diminished and led to serious incidents

Lesson Learned 1	− Extreme political sensibility with respect to **safety** − Public debate about accidents has forced politics to act: thorough investigation, replacement of key people, new roles (“CASO” – Civil Aviation Safety Officer) and a clear **separation** for policy and safety issues on behalf of the CAA
Lesson Learned 2	− **Efficiency targets** become less important if safety dominates the discussion − Despite a budget cut within the public administration in Switzerland, Parliament agreed to increase the head count of CAA by more than one third − Extreme speed with respect to decision process – despite federal structure
Lesson Learned 3	− Agency tasks (enforcement and regulation) versus provider tasks (rendering services most efficiently and in a customer oriented fashion) − “Misinterpretation” of customer orientation on behalf of the “former” FOCA organization - oversight (particularly with safety) should not be considered as a customer service but rather a mandatory duty

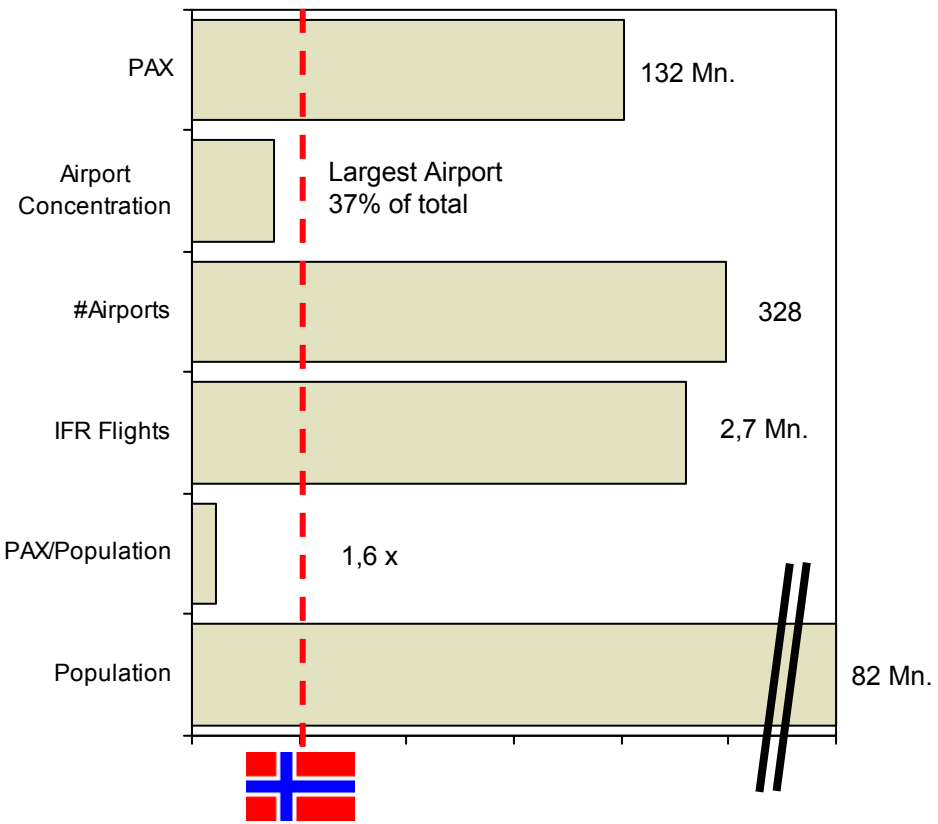
Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

Germany and Norway differ in two dimensions significantly – size of sector and governance

Comparison of Aviation Sectors in Germany and Norway

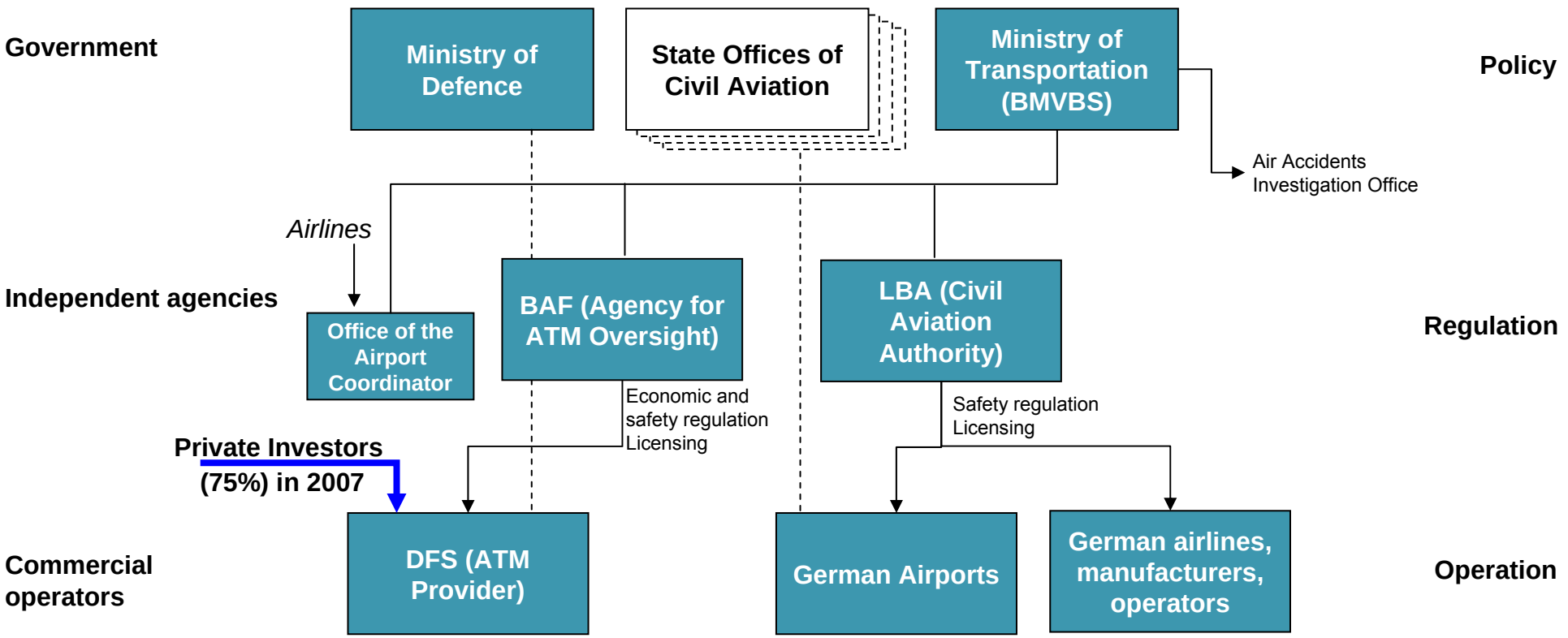
Traffic, Geography, Demographics



Organizations (CAA, ATM, Airports)

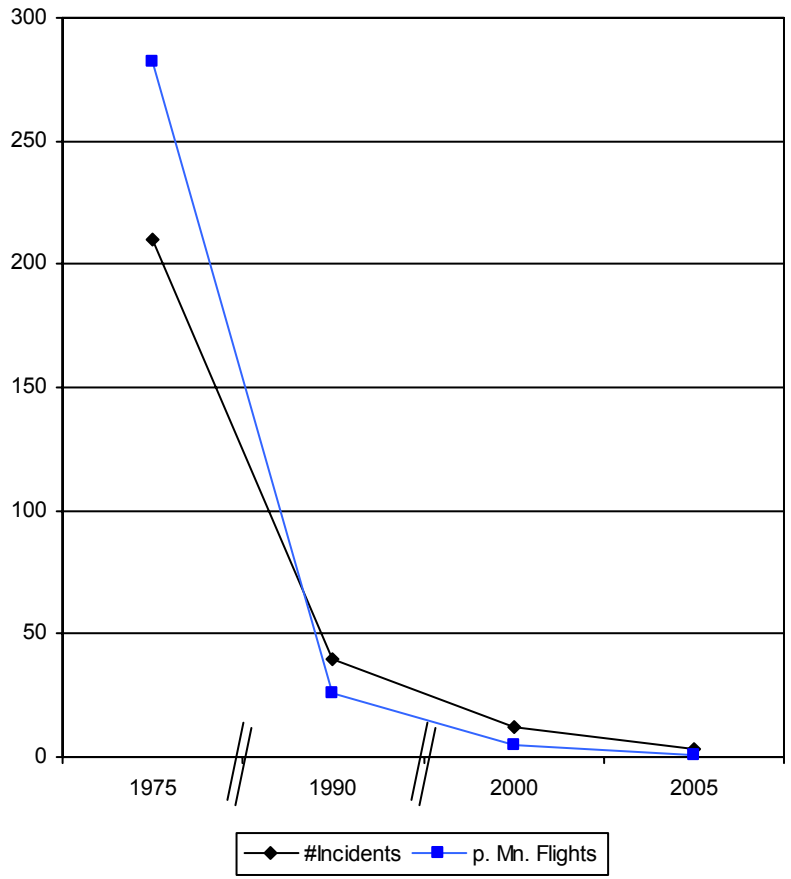
- Aviation Sector is much larger and complex in Germany than in Norway
- ATM Provider DFS is expected to be one of the few remaining individual organizations in the upcoming SES
- DFS will be privatized in 2007 and in parallel be subject to an economic regulation (first regulation period will 2007 until 2011) – focus will lie on efficiency
- DFS is said to have achieved highest safety and quality standards
- CAA (Luftfahrtbundesamt) and BFA (Bundesamt für Flugaufsicht) will perform safety and economic regulation as well as oversight in Germany
- Airport structure with a myriad of regional airports – 80% of passengers/freight are concentrated in seven largest airports

Despite the federal structure most power with respect to civil aviation regulation lies with the Federal Ministry of Transportation

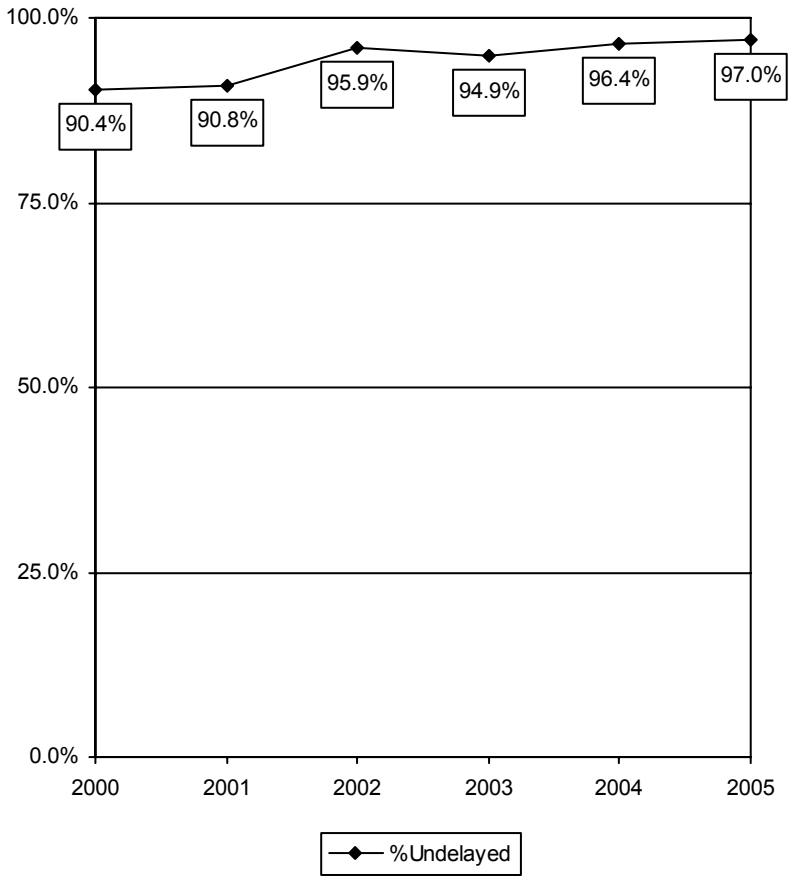


The German ATM Provider has significantly increased safety and quality of its services …

Selected Safety Statistics
Germany (DFS)



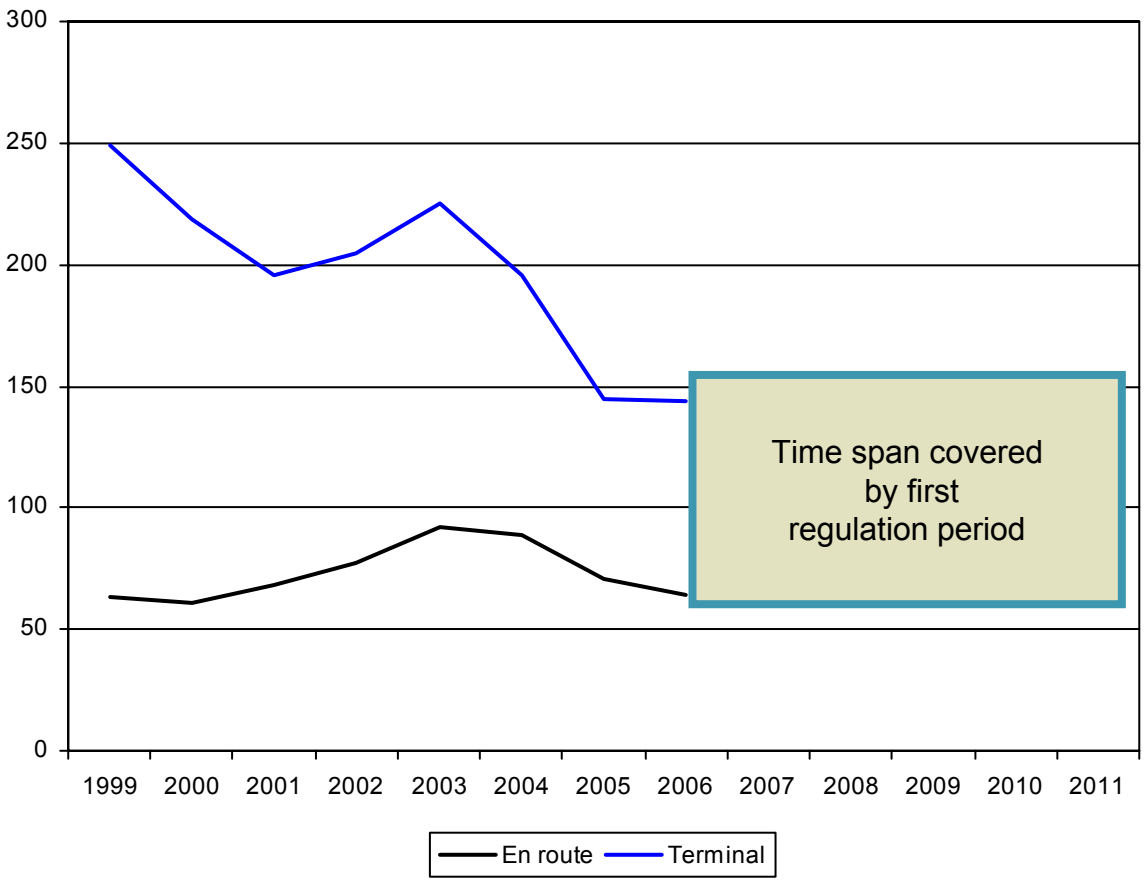
Performance Indicators
(Germany – DFS)



Source: Annual Reports

… and has successfully reduced charges in the last couple of years – economic regulation with a price-cap will be put in place for the time span 2007 till 2011

Charging Levels DFS 1999 – 2006
(in EUR)

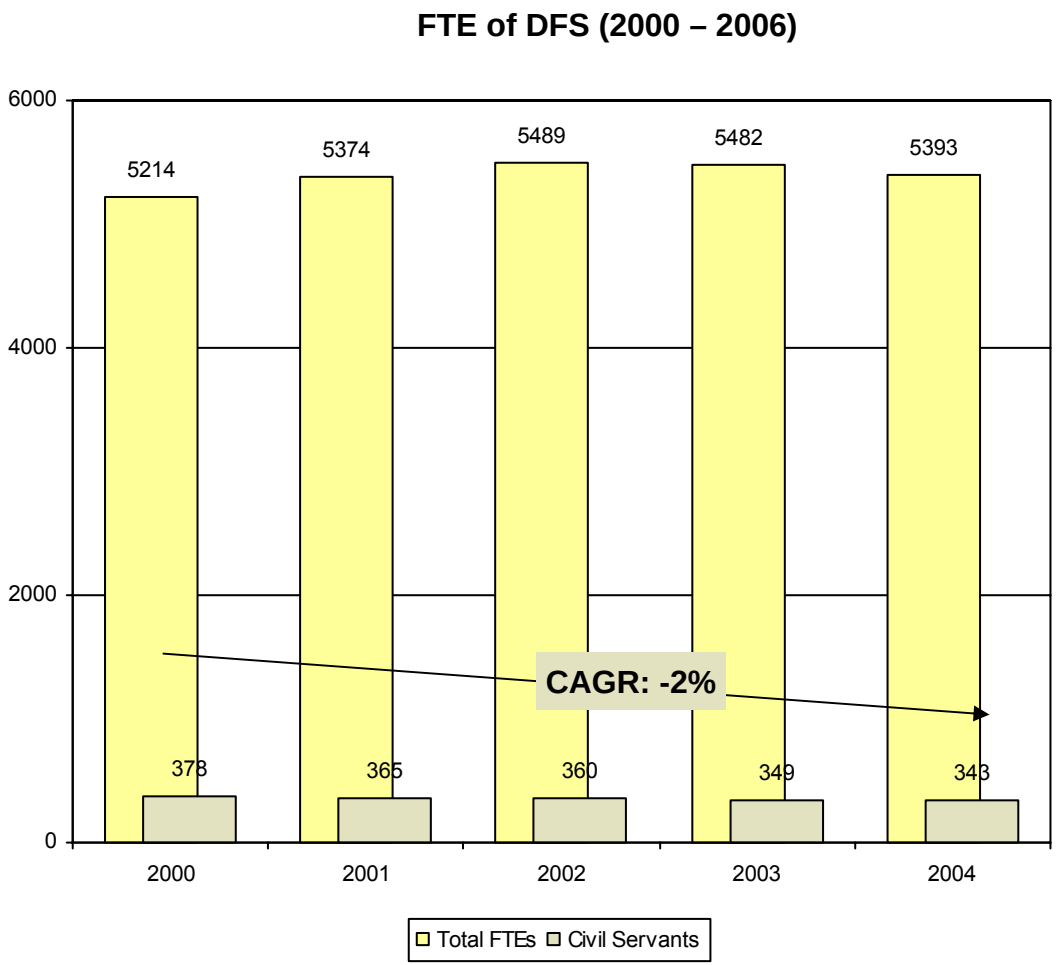


Source: Annual Reports

Comments

- Part of the decrease in charges is due to increased traffic and nature of ATM with high fixed cost structure
- In addition DFS has undergone significant improvements programs over the last 5 years:
  - Further consolidation of sites
  - Above average investment levels
  - Deployment of new systems
- Intention is to present a highly attractive company for private investors
- Economic regulation covering
  - Price-cap
  - Quality standards
  - Sliding scale mechanism
  - Dual till regulation (i.e. “other” business is not covered by regulation)
  - User involvement (via consultation)
- Rumors indicate that due to IFRS effects up to 1 bn. EUR has to be borne in addition by users

However, DFS will continue to be dependant on unfavorable working contracts and suffer from reduced flexibility

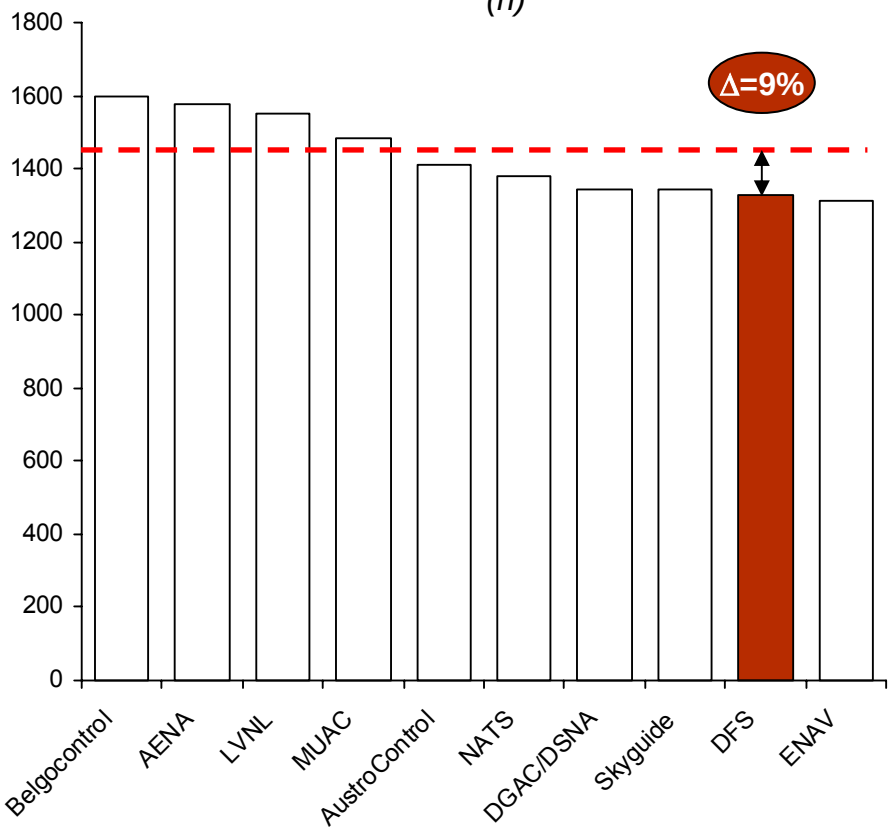


Source: Annual Reports

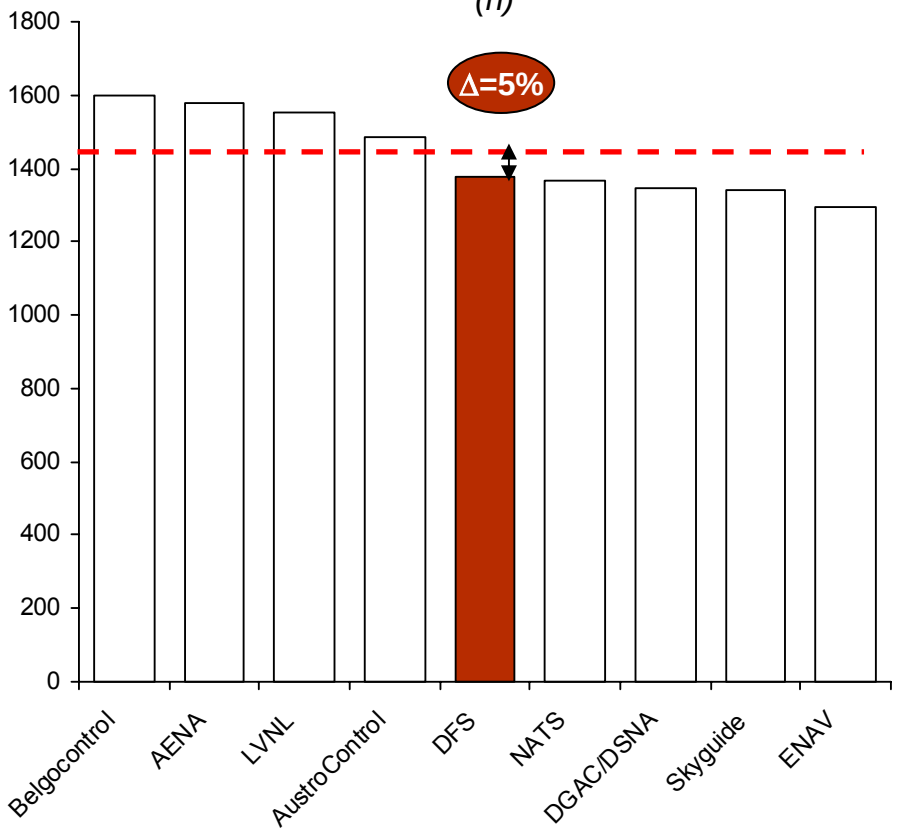
- 61% of total cost are personnel
- DFS had to absorb many civil servants from previous organization in 1994 (in 2004 still more than 300 civil servants)
- Last civil servant contracts are expected to expire not before 2036/40
- Relative strong trade unions – have threatened organization and political side in light of current efforts to privatize company

As a consequence DFS' labor efficiency is lagging behind international benchmarks

Yearly Working hours ATCO
„On Duty" En-Route
(h)



Yearly Working hours ATCO
„On Duty" Tower
(h)

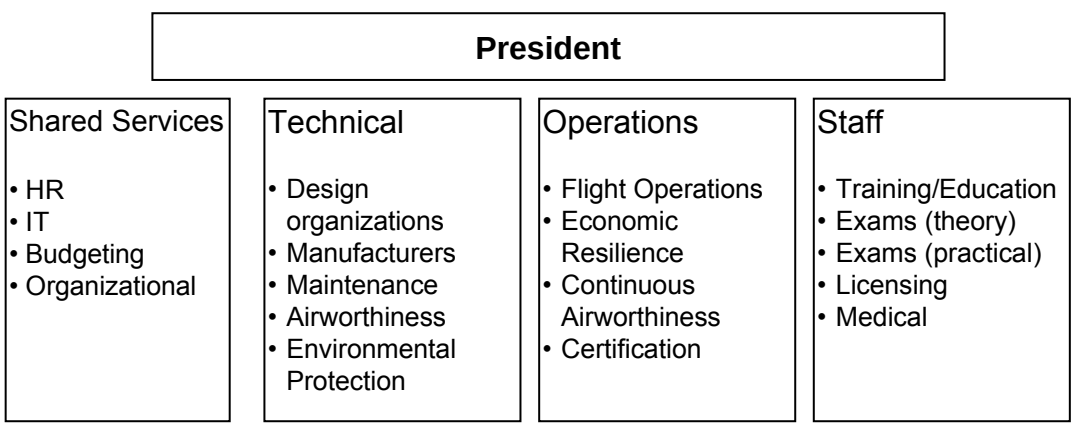


Source: Eurocontrol PRU ACE Report 2003"

In accordance with regulations two agencies will cover oversight in the future – the LBA and the specialized agency BAF

LBA (Luftfahrtbundesamt)

- Focus lies on certification, checking and approving of safety relevant activities
- LBA is JAA-founding member
- Central Headquarter in Braunschweig, with six subsidiaries distributed over Germany
- Part of certification activities will be transferred to EASA
- Staff slightly above 400
- Specific activities are delegated to Federal States (e.g. the approval of airports, flight shows etc.)



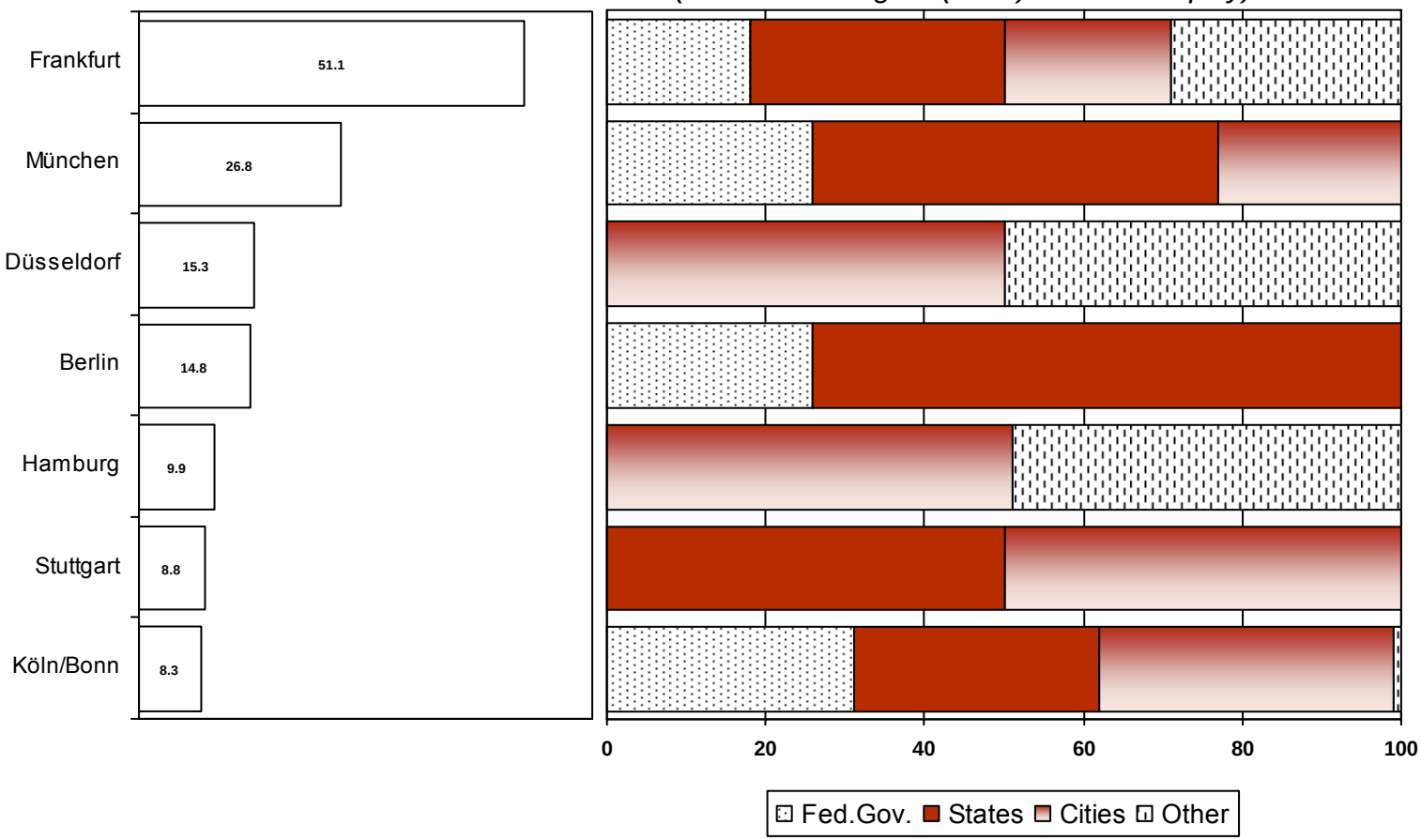
BAF (Bundesamt für Flugaufsicht)

- Reflects requirements of the SES for a National Supervisory Authority (NSA)
- Focus lies on oversight (safety and economic) over DFS after privatization
- Headquarter will be in Langen (close to Frankfurt), probably even within the site of DFS
- Main tasks will include:
  - Imposing economic regulation on civil and (potentially also military) side
  - Approving charges
  - Moderating User Concerns and conducing consultations
  - Balancing interests between users, public, investors and providers
- Agency is planned to start activity in July 2006
- Recruiting activities have been initiated
- Agency's staff might range between 60 and 80 people

State Governments and Cities still “own” the majority of passengers in Germany – a clear indication for the regional interest in airports

Size and ownership structure of six largest airports in Germany

(in Mn. Passengers (2004) and % of equity)



Overall Ownership Structure:

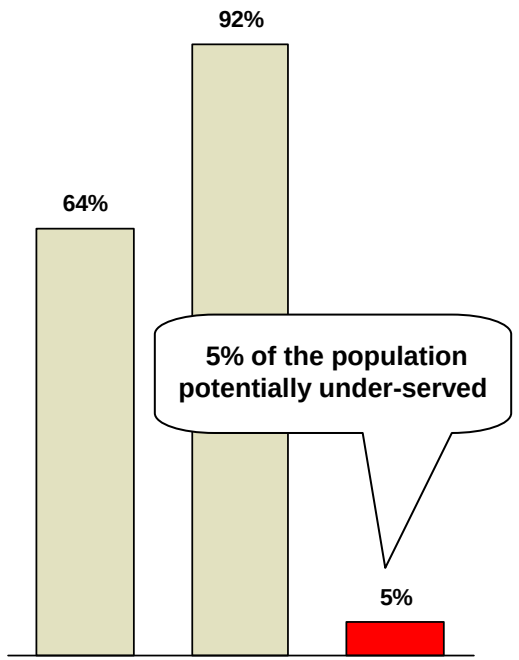
Federal Govern.: 17%
Regional and State: 63%
Others: 20%

(weighted with passengers)

The majority of regional airports are not profitable – accessibility has been achieved via political pressure

Accessibility of the nearest airport

(% of the total population)



Comments

- Several Regional Airports incur significant losses
- Significant subsidies are transferred to projects and airports that show no positive business case (usually less than 1 Mn. passengers)
- Regional politicians leverage myth "job engine airport"
- Established players claim distortion of competition
- Large Airlines and user lobbies argue for differentiating charges (more cost-oriented allocation of cost)

Source: "Lufthansa Politikbrief" – August 2004; "Masterplan zur Erschließung der Flughafeninfrastruktur" – Berlin 2004

The German case stands for a future proof solution within the Single European Sky – DFS has positioned itself to become one of the five (?) remaining providers in Europe's Single Sky

Lesson Learned 1	– Airport operations, ATM and CAA have never operated under one umbrella – High correlation between **airport size and profitability** – regional airports potentially not sustainable – The **federal structure appears to be replicated in the aviation sector:** ATM being mainly a "federal" task, while airport ownership and operations are operated rather on a regional level
Lesson Learned 2	– **Privatization is progressing fast in Germany**; several large airports have already sold off parts of their stakes and DFS is expected to be privatized with a majority stake of 75% in 2007 – **Interested investors are specialized infrastructure companies** such as Hochtief, Macquarie (and for ATM also Airlines and airport companies) and will aim for more efficiency
Lesson Learned 3	– DFS and the MoT have **thoroughly prepared for the next phase of privatization** −Efficiency improvements and consolidation of sites −Deployment of new technology −Economic Regulation prepared – DFS is **well positioned for the SES** as well as to benefit from non-regulated business
Lesson Learned 4	– Organizational set-up of ATM resembles traditional model – Major requirements imposed from agencies are to maintain safety, assure transparency and increase efficiency further to the benefit of user groups

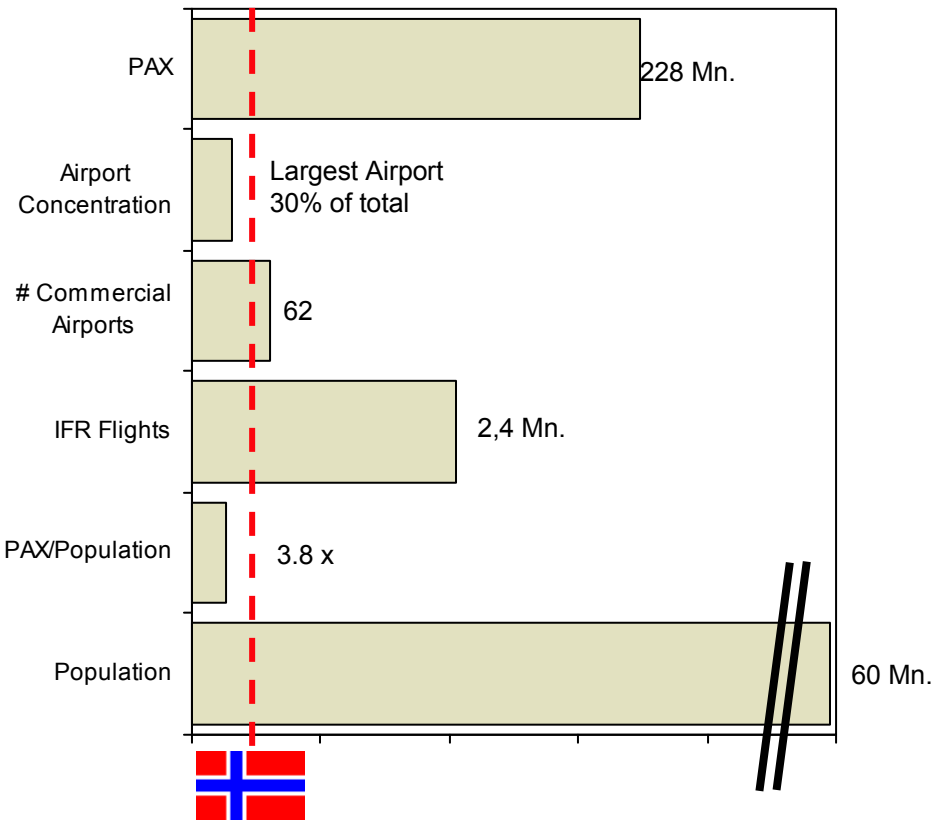
Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

As with the German case, the UK differs from Norway both in terms of the scale of air transport and governance

Comparison of Aviation Sectors in the UK and Norway

Traffic, Geography, Demographics



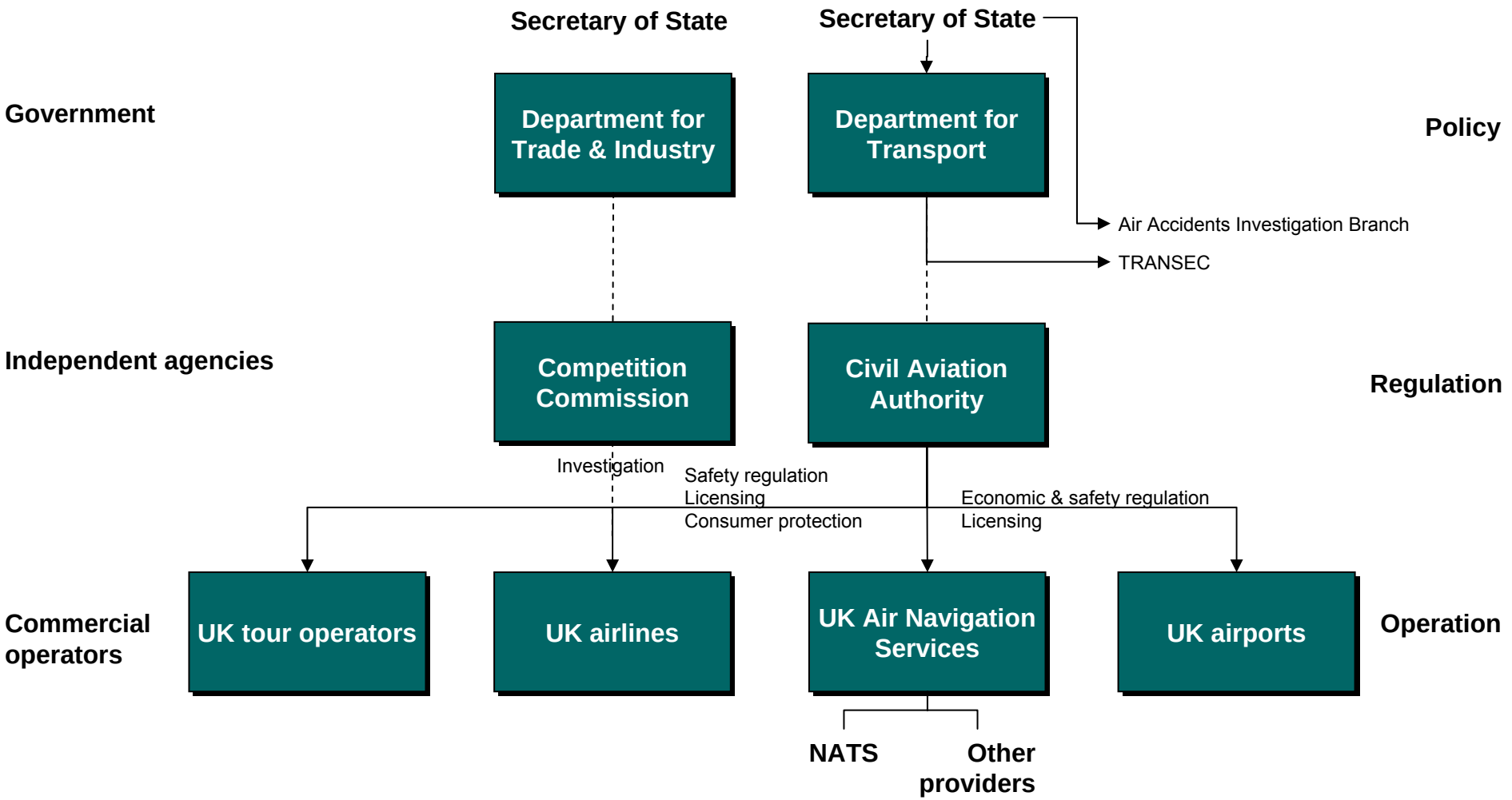
Organizations (CAA, ATM, Airports)

- The main ATM Provider NATS was part-privatized in 2001. Although en route services are a monopoly, airport ATC services have long been provided separately on a competitive basis
- The sector is regulated by a single body - the Civil Aviation Authority (CAA) in terms of both safety and economics
- After initial economic problems, NATS is now performing well. Safety was never an issue
- The vast majority of airports are operated commercially with many being privatized whilst others are public private partnerships and some are publicly owned companies
- Highlands and Islands airports are run as a subsidiary of the CAA as a public service concern
- Around 80% of traffic is concentrated in the top 9 airports

The UK operates one of the most commercialised air transport infrastructures in the world – ATM has moved away from the cost plus principle

- The Government retains responsibility for policy issues through the Department for Transport (DfT)
  - Overall policy setting
  - International relations
  - Air Accident Investigation Branch, reporting directly to the Secretary of State
  - Security regulation, through TRANSEC
- The Civil Aviation Authority (CAA) is responsible for safety and economic regulation although some functions have been taken over by the European Aviation Safety Agency (EASA)
- Airports are established as private companies and operated commercially
  - Some, such as BAA, are wholly private
  - Others are PPPs, with private and public sector shareholders
  - Others are wholly owned by the public sector, e.g. Manchester
- Air navigation services are provided on a wholly commercial basis
  - En route services are provided by NATS, established as a PPP subject to an incentivized economic regulatory regime
  - Airport services are provided on a contestable basis

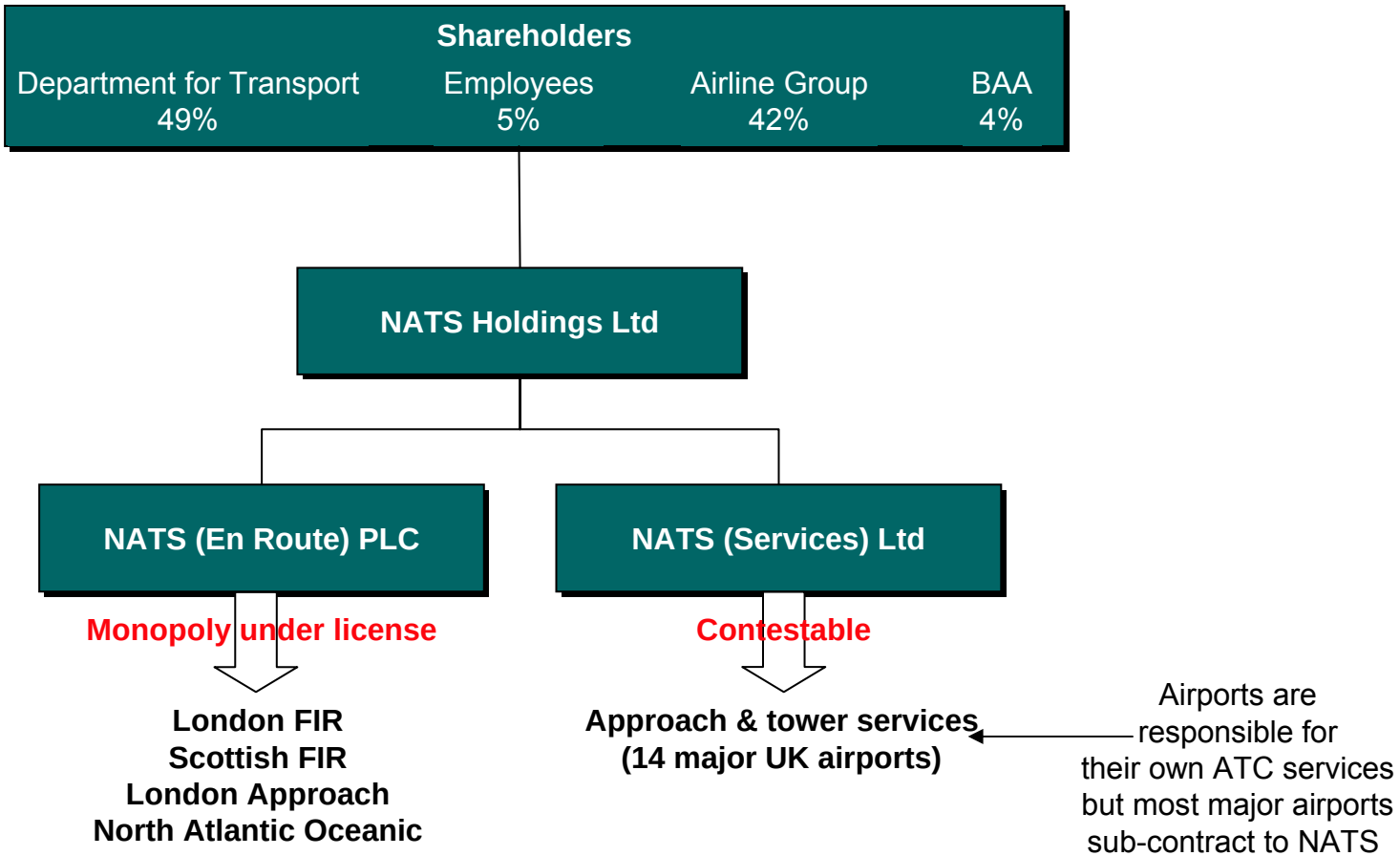
The UK arrangements for air transport infrastructure have three separate and distinct tiers – policy, regulation and operation



It is important to note that National Air Traffic Services (NATS) is not mentioned in any of the UK primary legislation – its mandate comes from its licence

- The basic legislative framework is set by the Transport Act 2000
- The Transport Act places obligations on several actors
  - the Secretary of State for Transport
  - the Civil Aviation Authority
- The Transport Act requires any service provider to be granted a licence in order to provide services – it does not name any specific provider but requires any provider to be licensed by the CAA
- The NATS En Route Licence specifies NATS obligations to provide en route, oceanic and London approach air navigation services and effectively grants NATS a monopoly position for the period of the licence (20 years with a 10 year notice period)
- The licence specifies the services to be provided
- The licence also specifies the economic regulation regime to which the services will be subject
- Airport services are not covered by this licence but are procured on a competitive basis by the airports

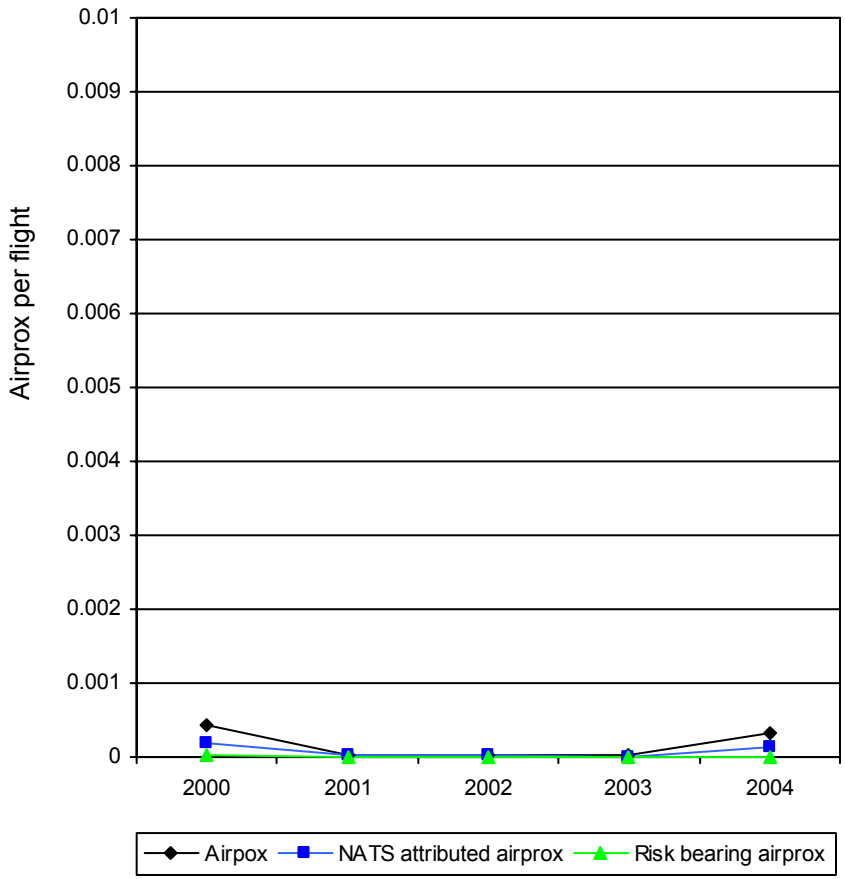
NATS is organised as a public private partnership (PPP)



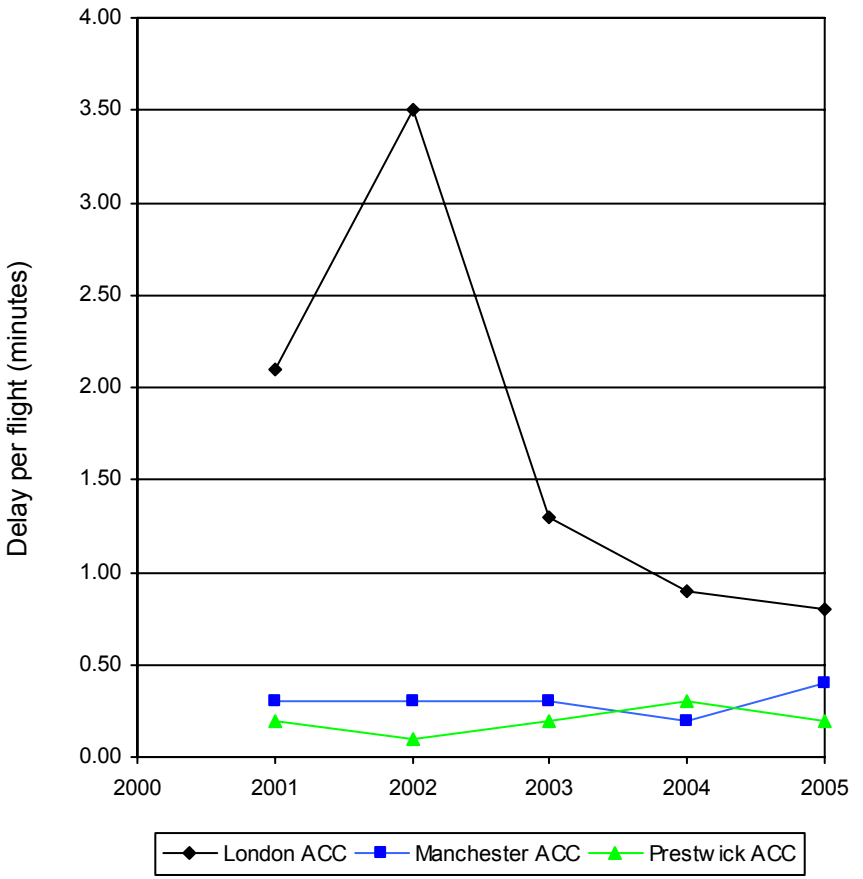
NATS provides en route services under its license but must compete to provide airport services

NATS has always had a good safety record and has recently much improved its punctuality record

NATS safety statistics

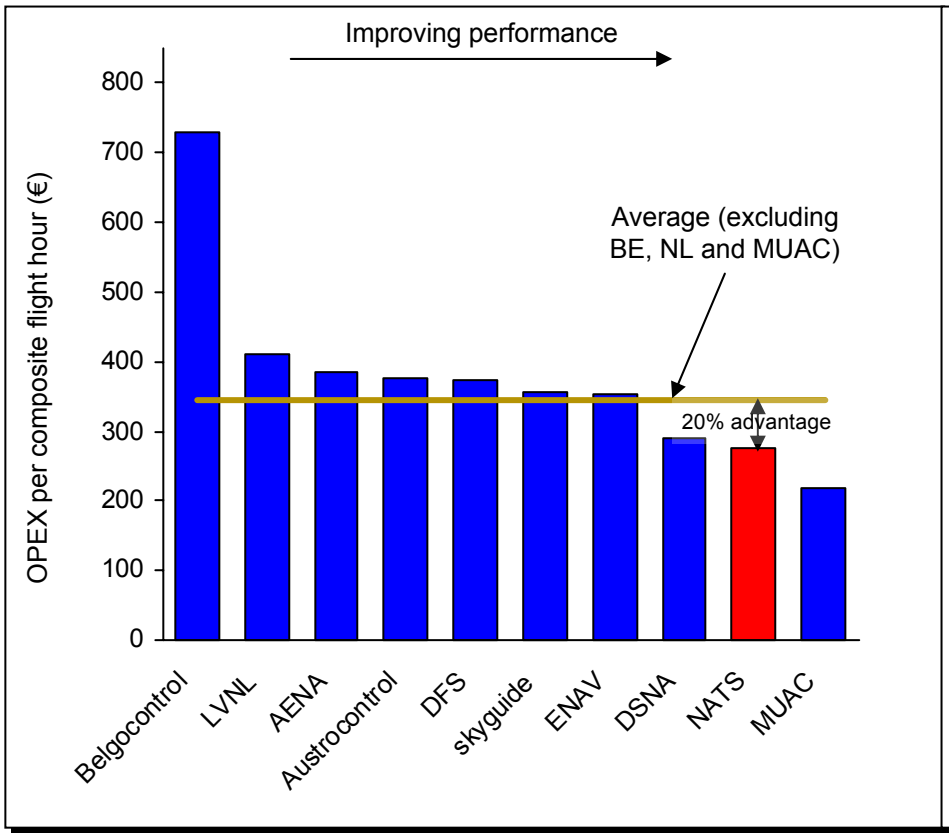


NATS delay statistics

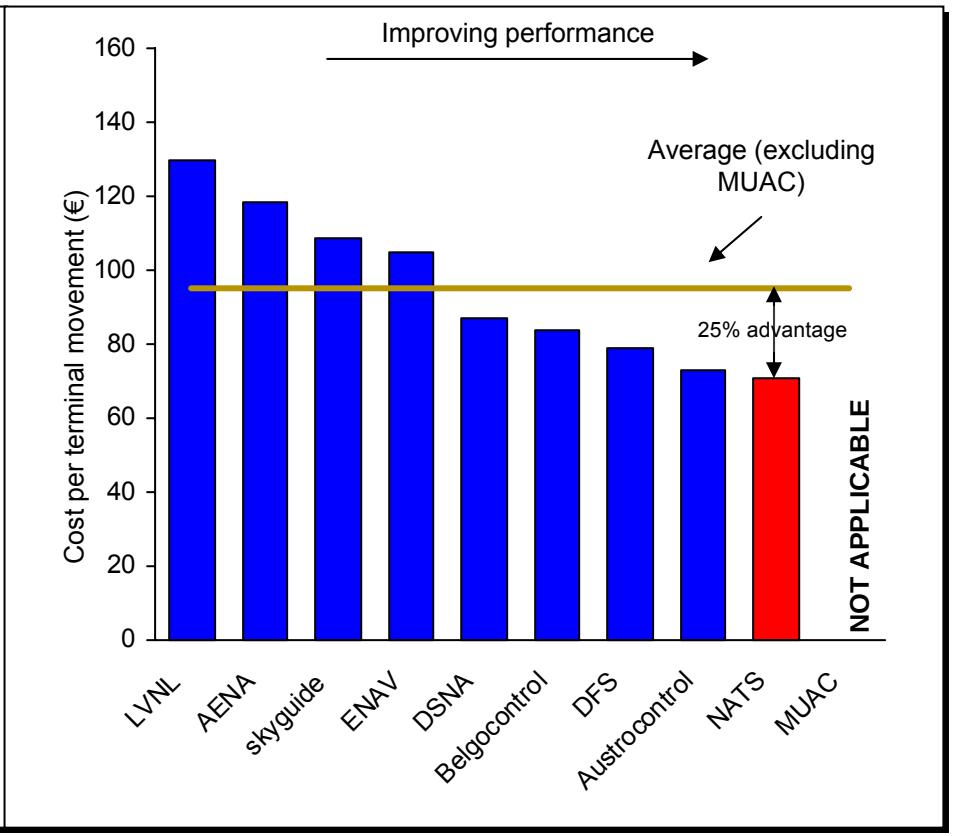


Compared to its peers, NATS shows better than average cost efficiency per unit output

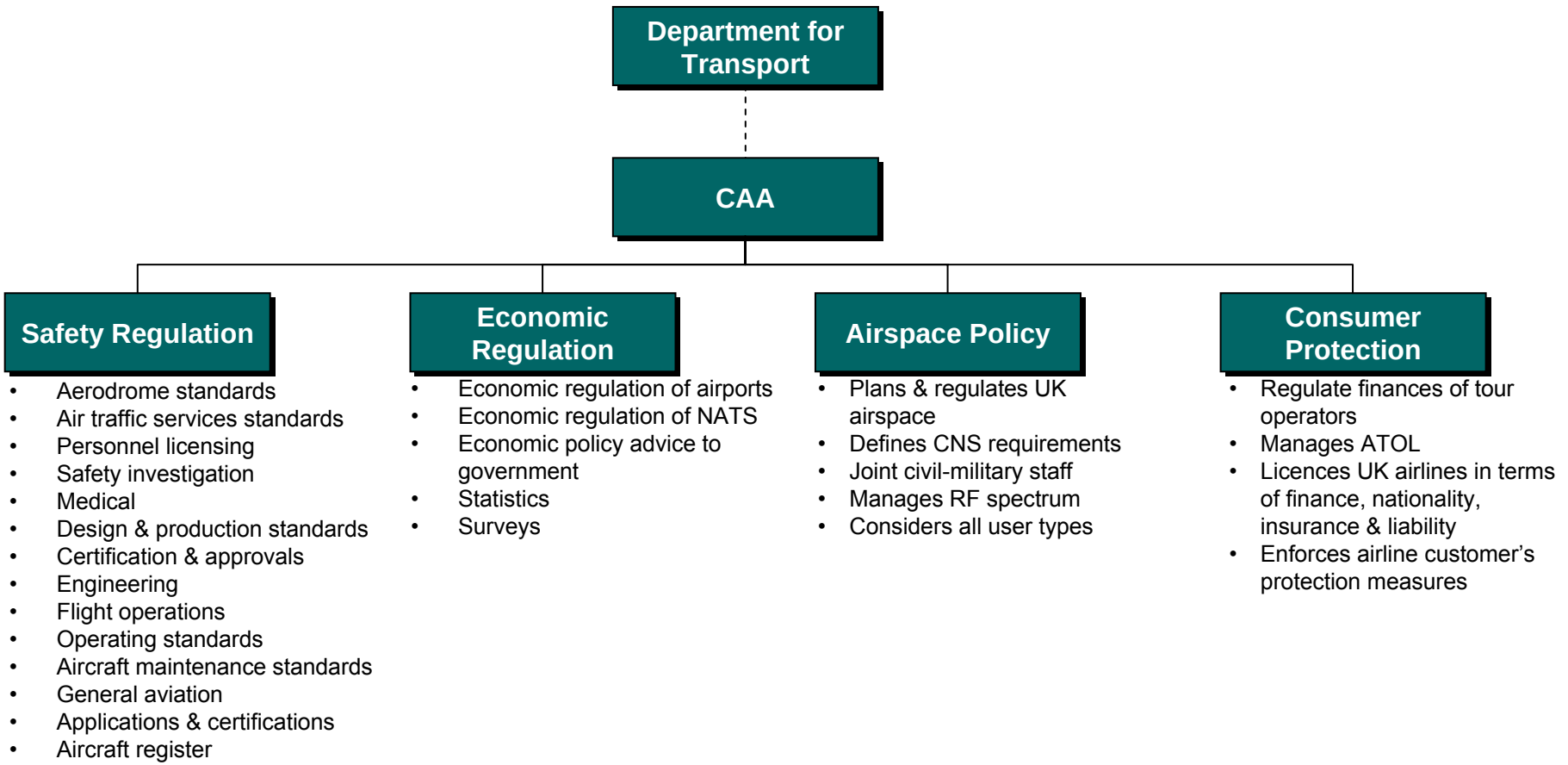
Operational cost per en route flight hour, 2003



Operational cost per terminal movement, 2003



The CAA has four basic functions as the UK's independent aviation regulator, although it is delegated other functions by government



- Aerodrome standards
- Air traffic services standards
- Personnel licensing
- Safety investigation
- Medical
- Design & production standards
- Certification & approvals
- Engineering
- Flight operations
- Operating standards
- Aircraft maintenance standards
- General aviation
- Applications & certifications
- Aircraft register

- Economic regulation of airports
- Economic regulation of NATS
- Economic policy advice to government
- Statistics
- Surveys

- Plans & regulates UK airspace
- Defines CNS requirements
- Joint civil-military staff
- Manages RF spectrum
- Considers all user types

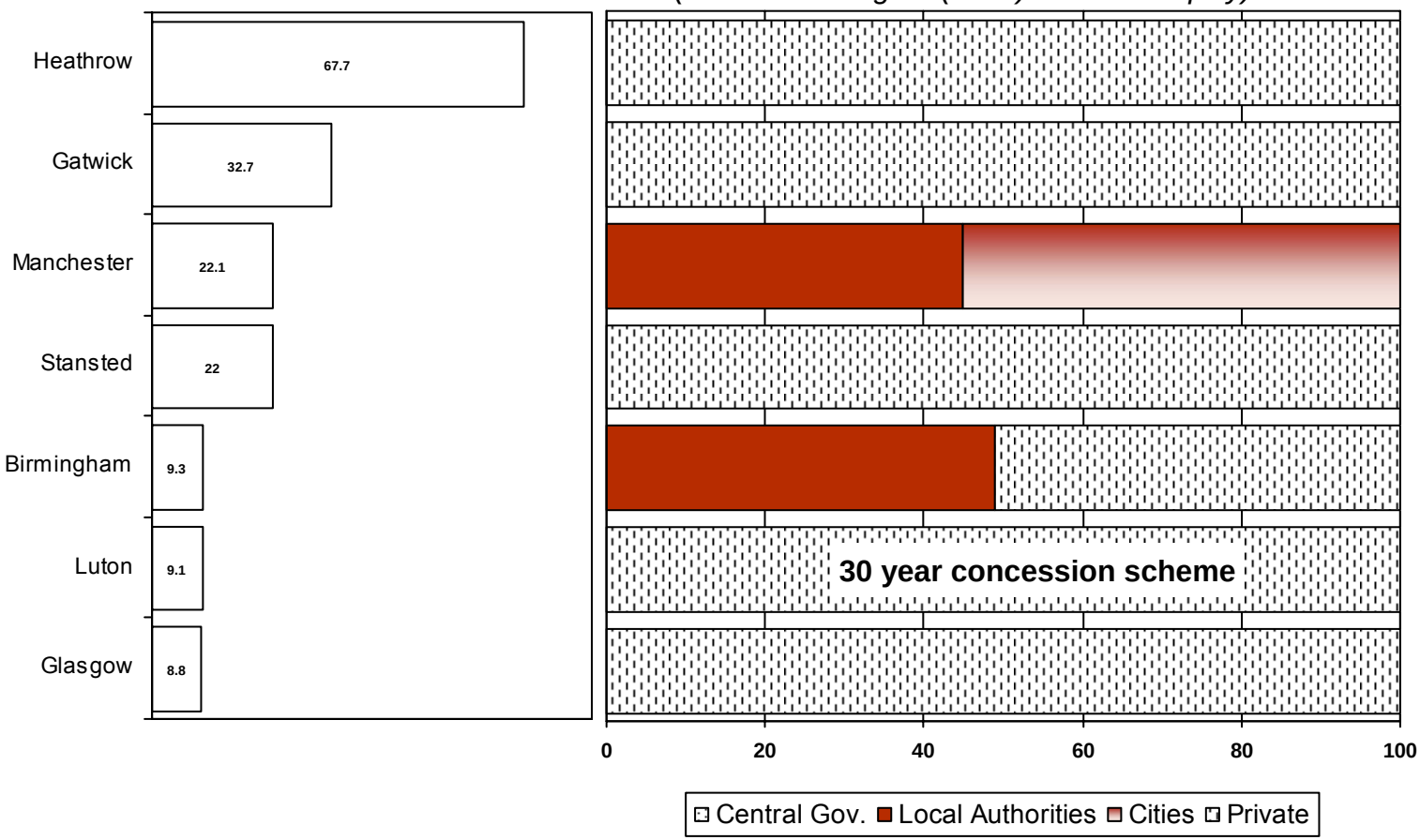
- Regulate finances of tour operators
- Manages ATOL
- Licences UK airlines in terms of finance, nationality, insurance & liability
- Enforces airline customer's protection measures

Economic regulation provides incentives for both efficiency and performance for airports and ATM, separately

Governance of the main UK airports is dominated by the private sector

Size and ownership structure of six largest airports in the UK

(in Mn. Passengers (2004) and % of equity)



Overall Ownership Structure of Sample:

Central Govern.: 0%
Other Govern.: 16%
Privately held: 84%

(weighted with passengers)

UK airport ownership can be classified into three groupings

Ownership groupings for the major UK airports

Pure private ownership	Public private partnership	Public ownership
BAA Group −Heathrow −Gatwick −Stansted −Southampton −Aberdeen −Glasgow −Edinburgh Abertis −Belfast International −Cardiff Peel Airports Group −Liverpool John Lennon −Doncaster Sheffield Robin Hood London City Airport Belfast City Airport Bristol Prestwick	Birmingham International Newcastle Luton	Manchester Airport Group −Manchester −East Midlands −Bournemouth −Humberside Highlands & Islands Airports Ltd −10 small airports in Scotland

All major airports are regulated by the CAA although only LHR, LGW, STN and MAN are designated for price control with incentives

The UK is the pioneer in the commercialization of its air transport infrastructure

Lesson Learned 1	− The treatment of air transport infrastructure as a “normal” utility can be successful without prejudicing safety and performance − En route air navigation services are a natural monopoly − Airport air navigation services can be contestable – airports can select the service best suited to their requirements rather than a one-size fits all situation
Lesson Learned 2	− It is possible to operate all but the smallest of airports commercially, i.e. OPEX can be covered, although it may not be possible to create these airports in a market situation, i.e. large sums of CAPEX may not be recoverable commercially − Small but socially important airports can still be run as public service obligations on a subsidized basis
Lesson Learned 3	− A strong independent and transparent regulatory structure is needed to maintain public policy interests in a highly commercialized environment − Safety regulation is paramount and cannot be compromised − Economic regulation should be proportionate to the market power of the regulated entity − The regulatory overhead can be expensive
Lesson Learned 4	− In the commercial environment, policy, regulation and operations should be as independent of each other as possible so that each of the actors can focus on its core competences without tactical interference from the others

Selected case studies – organizational models (static view)

- Poland
- Ireland
- Switzerland
- Germany
- UK
- Summary and Lessons Learned

The case studies point to a number of broad lessons that can be learned concerning airport/ATM integration

- There is **no particular advantage of having a highly integrated airport/ATM service provision structure**
  - transparency and the need for explicit user approval may limit the opportunity for cross-subsidy…
  - …as may new regulations on common charging schemes for ATM
  - cost allocation for shared services and infrastructure is expected to be difficult
  - economies of scale may be very limited in very diverse organizations
  - dilution of focus away from core competences might be detrimental to performance

- It is the norm for a single organization – the national air navigation service provider - to have the obligation for provision of both en route and terminal (airport) ATM services as monopolies
  - en route services are likely to remain a natural monopoly under the control of the State
  - responsibility for terminal services may be transferred to the airport, e.g. in the UK and planned in Germany, and treated as contestable

- **Separation of integrated organizations may be difficult and time-consuming for financial/accounting reasons**
  - allocation of debt
  - allocation of assets

The highest degree of separation of regulation and operations is universally accepted as best practice

- **Safety is paramount**
  - no particular organizational model performs better than any other
  - safety and risk management processes, procedures and culture are much more important
  - safety failures are an immediate trigger for organizational and process change
- There is **no trade-off between safety and other service parameters**, such as efficiency
- Complex **arrangements** must be put in place **to avoid conflicts of interest and maintain independence of the safety regulator** where organizational separation is not possible
- In commercialised models where profit is a motivation, **economic regulation** is necessary to preserve the public policy interest and protect the consumers only where the provider wields high market power
  - price caps
  - efficiency incentives
  - performance incentives (e.g. Bonus/Penalty-Systems)
  - risk sharing
- Some States choose a dual-organization regulatory structure while others choose a unitary structure

The more commercialised models examined have efficiency incentives that motivate them to outperform traditional models

- **State-owned enterprises and private companies can perform equally well** as long as the incentives exist and they have the freedom to do so
- The associated **regulatory structure must contain controls and incentives**
  - profit must not come before safety and provision of adequate levels of service
  - incentives should include bonuses and penalties in a move away from traditional cost-plus regimes
  - the depth of regulation should be proportional to market power
- Both **ATM and medium sized/large airports can be self-sustaining commercially**
  - both are generally treated as special infrastructure
  - the more radical approach is to treat them as a utility
- The costs of small but socially important airports can be subsidised from public funds using a public service obligation approach
- To be successful, commercial operators must be allowed to run their infrastructure – airports or ATM – in a broad policy and regulatory framework without day-to-day political interference

Organizational trends (dynamic view)

- Drivers for change
- Trends in airports
- Trends in ATM

Air transport infrastructure must be provided in compliance with global, regional and local requirements

Examples of compliance issues to address in analysis of strategic governance options

Global

ICAO (Chicago Convention)
- Article 28 requiring a State to *…provide, in its territory, airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time…*
- Article 15 on the provision for charging for use of infrastructure and the principle of non-discrimination

ICAO Doc 9082
- users should pay directly for the charges they use
- charges defined as *…levies to defray the costs of providing facilities and services for civil aviation*
- cost plus a reasonable return on assets

Regional

Single European Sky regulations
- Framework regulation
- Airspace regulation
- Interoperability regulation
- Service provision regulation
- Common requirements
- Flexible use of airspace
- Common charging scheme

EUROCONTROL requirements
- ESARRS
- ECIP

Institutional best practice
- Separation of operations & regulation
- Transparency

Local

Operational & cost efficiency
- airport benchmarks
- ATM benchmarks

Operational effectiveness
- delays
- cost of service

Regulatory structures
- safety
- economic

Public service obligations

Environmental concerns
- emissions
- noise

Liberalisation of the air transport regime in the EU and associated States has been a massive driver for growth and change

- Under the EU's Third Air Transport Package European airspace within the single market is open to all carriers registered within an EU Member or associated State
  - This has fuelled the growth of low cost carriers
  - Full cabotage and "foreign" ownership is enabled
  - this will be broadened in the foreseeable future to a European Common Aviation Area (ECAA)
- Other air transport rights are governed by bilateral air services agreements which are now negotiated by the EU on behalf of the Member States although the majority of legacy agreements are now in place
  - EU has so-called horizontal negotiation mandates
  - Agreements cannot favour (designate) national carriers
- Non-commercial but socially essential services are provided through Public Service Obligation arrangements
  - Route franchising (subsidies)
  - Subject to EU competition law

Within Europe there are also specific drivers associated with the Single European Sky that are changing the way ANSPs do business

Expected impacts of the Single European Sky initiative

Legislative Framework

The Framework Regulation

Service Provision Regulation	Airspace Regulation	Interoperability Regulation

Implementing Rules

EUROCONTROL performance review mandate

• Charging scheme • Common requirements • Controller licence	• Airspace classification • Route design • ATFM	• Coordination & transfer • Initial flight plan • Flight message transfer • Data link services • Aeronautical data integrity • A-G voice channel spacing

Main regulatory impacts

Institutional arrangements
→ national supervisory authority (NSA)
→ certification of service provider
→ designation of service provider
→ potential designation of MET provider
→ compliance monitoring by NSA
→ mutual recognition of certificates
→ supervision, monitoring & impact assessment by State & EC

Economic aspects
→ common charging scheme
→ non-discriminatory
→ optional performance incentives
→ transparency of accounts
→ performance review
→ IAS
→ FABs to be justified by CBA
→ formal relations between service providers including data exchange

Common requirements
→competence & suitability
→safety & quality management
→reporting systems
→quality of service
→financial strength
→liability & insurance

Airspace organization
→ single EUIR
→ single AIP
→ common principles on route & sector design
→ FUA
→ FABs
→ cross-border service provision
→ ATFM

→ potential to extend to lower airspace

Safety
→ ESARRS
→ ATCO licensing
→ mandatory safety occurrence reporting

Typically the main internal drivers for change in air transport infrastructure have been associated with investment and efficiency…

- Best use of **scarce national resources**, in competition to other worthy recipients of limited State funding
- Ensuring that **funding** for the capital investments needed to provide capacity to meet demand in a timely fashion without placing undue burden on the State's purse
- Promote the **economic efficiency** with which services are provided without prejudicing the effectiveness (performance) of the system and maintaining or improving safety
- Moving towards a more **consumer-oriented approach** from the traditional supplier-driven situation taking into account the needs of users and treating them as customers
- Application of **flexible employment** schemes to enable the appropriate human resources to be recruited, trained, deployed and retained to meet demand cost effectively whilst providing incentives for this flexibility through reward and compensation schemes outside of rigid civil service rules

…that must be designed to account for the complex environment in which air transport operates

1

Infrastructure must be provided in discrete packages rather than incrementally
- Timing and location are critical – waste or congestion
- Always a white elephant period when capacity is much greater than demand
- Difficulty in raising prices immediately after investment
- Need for price discrimination after investment to encourage demand

2

There are complex interactions between the actors
- ATI is an upstream market depending on the airlines downstream market and vice versa
- Costs and benefits are distributed across the network, often not uniformly or fairly
- Customer behavior can affect costs of suppliers & other customers
- The global system behaves as a network with knock-on & ripple effects

3

Products and services are interlinked and provided as bundles
- Different services share common infrastructure, complicating pricing
- Difficult to set meaningful service standards
- Different users need different quality of service from common infrastructure

4

The ratio of fixed to variable costs is very high
- Marginal cost pricing is difficult

This has led to a structured economic assessment of the governance options at the policy level…

Factors to consider in analysis of strategic governance options

Economic efficiency	Sustainability	Externalities
Productive efficiency • ratio of outputs to inputs Allocative efficiency • maximisation of net benefit • tendency of prices towards marginal production costs Dynamic efficiency • Outputs most closely aligned to customers needs over time Optimal risk sharing	Transfer of financial burden • customer willingness to pay • access to capital at the right time • non-commercial infrastructure • prioritisation of investment • cost of capital • bankruptcy provisions Promotion of innovation	Environment • noise • emissions • local congestion

…with sound, evidence-based techniques, such as cost benefit analysis being used to support decision making

…with commercialised structures expected to outperform traditional government models in most areas

Expected performance of strategic governance options

ILLUSTRATIVE

Assessment factor			Option			
			Government	State Owned Enterprise	PPP	Private
Economic efficiency		Productive	◔	◑	◕	●
		Allocative	◔	◕	◑	◑
		Dynamic	◑	◕	◑	◑
		Risk sharing	○	○	●	○
Sustain-ability		Financial burden	○	◑	◕	●
		Innovation	◑	◑	◑	◕
Externalities			●	●	◑	◑

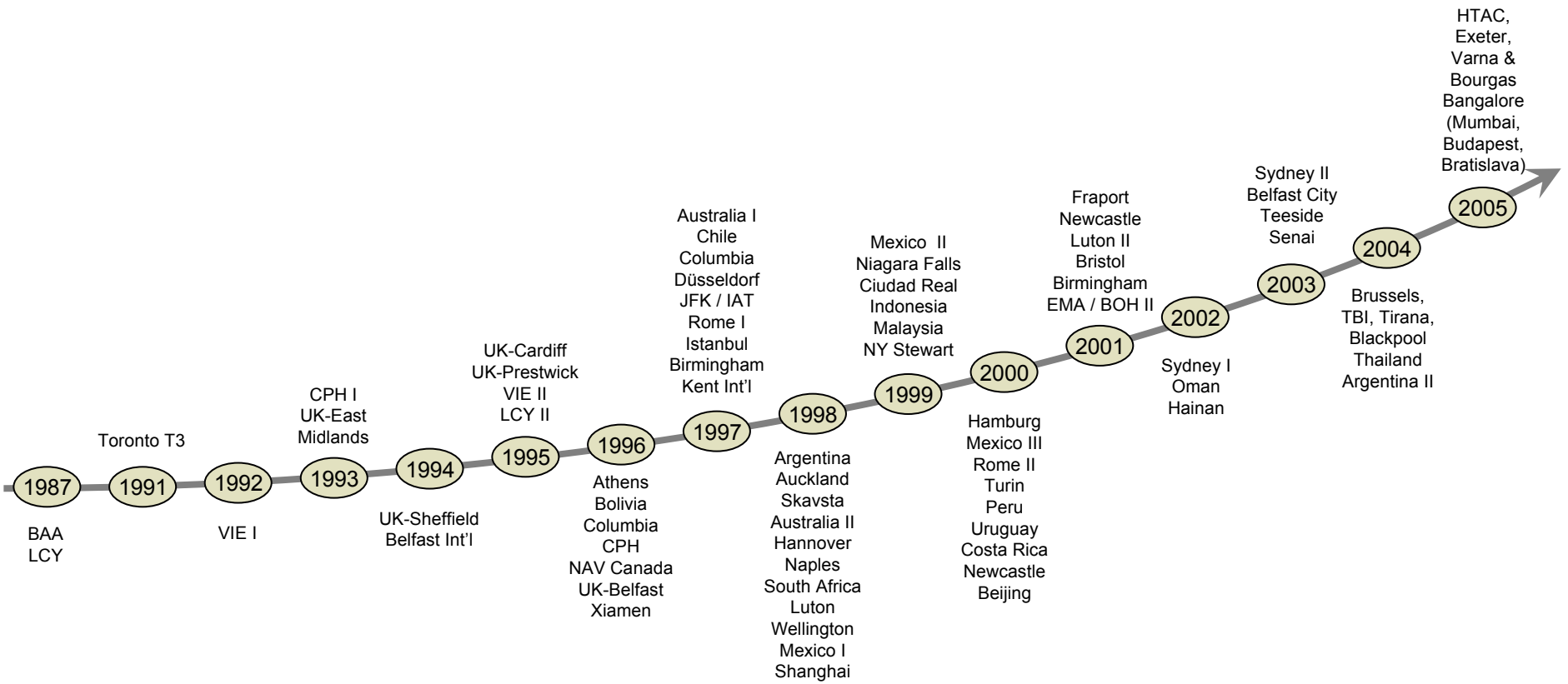
○ Very poor → ● Very good

Organizational trends

- Drivers for change
- Trends in airports
- Trends in ATM

Private sector participation in airport infrastructure has been accelerating since the first privatisations occurred in 1987

Examples of private sector participation in major airports between 1987 and 2005



Private sector participation in airports has been arranged using a variety of models

Mechanisms for the private sector to be involved in airport ownership, management and operations

Ownership	Infrastructure management and operations	Ground Handling	Commercial activities

• State-owned enterprise
• Joint venture build
• Private build
• IPO/ share sale
• Trade sale
• Long leases
	• Concessions
	  • Groups of airports
	  • Whole airport
	  • Terminal
	  • Runway
	• Leases
	• Management contract
	• Contracts
		• Divestiture
		• Concession
		• Licence
		• Contracts
			• Concessions
			  • car parking
			  • retail
			  • catering
			  • banking
			  • etc
			• Contracts
			  • advertising
			  • property management

Currently the level of privatisation of European airports is already high, at over 60 transactions, and is increasing

Current Level of Private Sector Participation in Airports

Region	Model of private sector participation							Approximate number of transactions†
	Divestiture		Long lease	Concession			Management contract	
	Share sale	Trade sale		Airport	Terminal	Runway		
Australasia	◔	◔	◕	○	○	○	○	~16
CEE & C Asia	◔	○	○	◑	◑	○	◔	~14
E Asia & Pacific	◑	○	○	◔	◑	◔	◔	~20
Latin America & Caribbean	○	○	○	●	◔	◔	◔	~35
M East & N Africa	○	○	○	◑	○	○	○	~12
N America	○	○	◑ (Canada)	○	◔	○	◕	~15
South Asia	◔	○	○	○	○	○	◔	~3
Sub-Saharan Africa	○	○	○	◔	◔	○	◔	~5
W Europe	◕	●	◔	◔	◔	○	◔	~60

Key: ○ → ● (Low activity → Very high activity)

†. Note: Number is indicative only and refers to the number of privatisation transactions not the number of airports in which there is PSP. A transaction involving a group of airports, e.g. BAA, in the UK (7 airports), AA2000 in Argentina (33 airports) only counts as one transaction

Organizational trends

- Drivers for change
- Trends in airports
- Trends in ATM

A variety of governance structures are applied to national air navigation service providers (ANSPs)

Air Transport Infrastructure Governance Models

	Model	Ownership	Governance structure	Authorisation/ mandate	Financial provisions	Audit/regulation
1	**Government Department**	State	• Direct political control • Director General reporting to minister • Civil service structure	• (Constitution) • Parliamentary laws • Civil aviation regulations • Air navigation orders • AIP	• Inside State general budget provisions • Annual budgeting	• External audit by government auditor • Regulations set internally
2	**Government Agency or Authority**	State	• Independent • Board of directors • Director General • Reports to Government Department • Civil service structure	As (1) plus: • Act of establishment	• Inside State general budget provisions • Annual budgeting	• External audit by government auditor • Regulations set internally

3	**State Enterprise**	State	• Independent
			• Board of directors
			• CEO
			• Reports to Government Department
			• Civil service structure
				As (2) plus:
				• Articles of association
				• Laws governing State Enterprises (different from normal company law)
					• Inside State general budget provisions
					Financial accounting
					  • P&L account
					  • Balance sheet
					• Generates annual return
						• External audit by government auditor
						• Financial audit by independent auditor
						• Regulations set internally

4	**Corporatized Entity**	State as shareholder	• Shareholders
			• Supervisory board
			• Management board
			• CEO
			• Company/business structure
				As (2) plus:
				• Articles of association
				• Laws governing State Companies (may be the same as normal company law)
					• Independent of State
					• Financial accounting
					  • P&L account
					  • Balance sheet
					• Generates dividends
					• Subject to company tax
						• Financial audit by independent auditor
						• Regulations set externally
						• Compliance checked by external regulator

5	**(Part) Private Entity**	General shareholders (can be a mixture of State and private or non-share capital company)	• Share (stake) holders
			• Supervisory board
			• Management board
			• CEO
			• Company/business structure
				As (2) plus:
				• Articles of association
				• Laws governing Private Companies
					• Independent of State
					• Financial accounting
					  • P&L account
					  • Balance sheet
					• Generates dividends
					• Subject to company tax
						• External audit by government auditor
						• Regulations set internally

Comment: Governance refers to the policy applied by the principal in managing the principal-agent relationship

Thirty years ago, all ANSPs were run as part of government – the international trend is towards private sector operating models

Snapshot of Governance Models Currently Applied in ATM

1 Government Department

- Developed countries: France, Greece, Japan, Luxembourg
- Developing countries: Afghanistan, Algeria, Angola, Armenia, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belize, Bolivia, Botswana, Brunei, Chad, Chile, Cook Island, Costa Rica, El Salvador, Ethiopia, Gambia, Ghana, Guatemala, Iran, Iraq, Israel, Jamaica, Jordan, Kenya, Kuwait, Laos, Liberia, China, Brazil, Mexico, Indonesia, Malaysia, South Korea, Syria, UAE

2 Government Agency

- Nigeria (NAMA)
- USA (FAA)
- Airports Authority of India
- EUROCONTROL

3 State Enterprise

- Australia (Airservices Australia)
- Belgium (Belgocontrol)
- Bulgaria (ATSA)
- Czech Republic (ANS CR)
- Denmark (Naviair)
- Egypt (NANSC)
- Finland (Finnish CAA)
- Hungary (Hungarocontrol)
- Malta (MATS)
- Netherlands (LVNL)
- Portugal (NAV EP)
- Poland (PPL)
- Romania (ROMATSA)
- Slovakia (LPS)
- Spain (AENA)
- Sweden (LFV)
- Thailand (AEROTHAI)
- Ukraine (UKrSATSE)

4 Corporatized Entity

- Austria (Austro Control)
- Croatia (Croatia Control)
- Estonia (EANS)
- Germany (DFS) — Sale in 2006 →
- Ireland (IAA)
- Italy (ENAV)
- New Zealand (Airways Corp)
- Norway (Avinor)

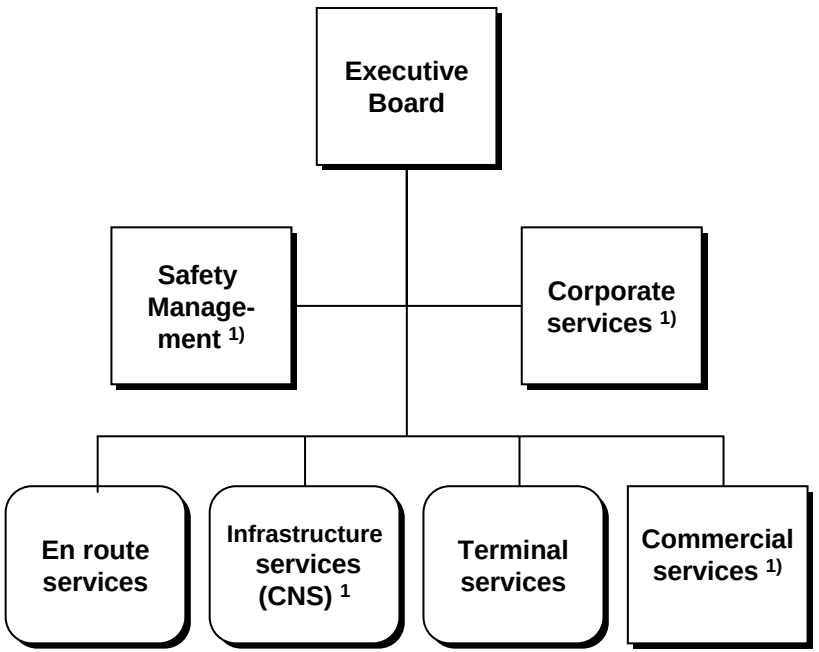
5 Partly Private Entity

- Serco (provides services at some selected locations globally(100% private)
- ATC at selected airports in UK (100% private)
- Canada (Nav Canada) (100% private)
- Germany (DFS) (75% private)
- United Kingdom (NATS) (49% private)
- Switzerland (skyguide) (<5% private)

Trend to increasing "corporatization" and part-privatization

In addition to the governance trends, the organization of ATM providers appear to be converging to a common structure

Typical Organizational Structure for ATM



Example Activities of Functional Units

Safety Management

- Safety management
- Quality management
- Internal safety, quality and environmental audit
- Environmental assurance
- Security Management
- Contingency Planning

Corporate services

- Strategic planning
- Administration functions
  - accounting and finance
  - treasury
  - tax
  - Insurance
  - legal
- Billing
- Internal audit
- Human resources
- Marketing
- Regulatory compliance
- External relations

En route services

- Area control centres
- Aeronautical information services
- Flight information services
- Airspace management

Terminal services

- Approach control centres
- Towers

Infrastructure services

- Communications, navigation and surveillance systems
- Maintenance
- Facilities management
- Information management

Commercial services

- Training
- Flight inspection[2)]
- Consultancy

The best practice structure promotes clarity of function, operational and financial transparency and customer focus

Note 1: Safety Management, Corporate services, Commercial services and part of Infrastructure services could be elements of shared services in an integrated organizational structure
Source: Booz Allen Hamilton benchmarking for best practices in global ATM

Analysis of the effects of this corporatization trend suggest positive results provided the correct balance of incentives is applied

- Public interest must be maintained through proportionate application of regulation and oversight: - safety, economic, financial, environmental, security, etc
- Costs are reduced whilst financial stability is maintained
- The most successful commercialised models the can provide the correct balance of incentives
  - efficiency savings
  - performance improvement
  - customer orientation
  - staff retention
- Win-win situations can be created for governments, providers, customers and other stakeholders