



Finance and Deployment Track Summary

Lluís Vinagre, ISDEFE

with thanks to Wim Post, Christoph Meier, John P Clarke & Mark Hansen

Finance & Deployment



Finance, Deployment and Implementation Issues (new theme in 2007) - Ideas and experiences concerning the movement of ATM concepts and technologies from the development stage to the deployment and implementation stage

- Methodologies for business case and investment analysis.
- Studies of the cost and cost incidence of the present ATM system and proposed improvements to that system.
- Alternative strategies for capitalizing and recovering the cost of ATM investments.
- Comparative analyses of the roles of government and industry in SESAR and NGATS.
- Case studies of successful and unsuccessful efforts at ATM innovation

Finance & Deployment



8 papers submitted:

- “heterogeneous” mix
- 3 USA, 5 Europe
- 3 specific technological case studies
- 3 conceptual modelling, validation & R&D
- 1 “pure” financial
- 1 transitional issues

Finance & Deployment



papers selected:

- **Air Navigation Service Charges in Europe**, L Castelli & A Ranieri, DEEI – University of Trieste, Italy
- **The Dynamics of Air Transportation System Transition**, A Mozdzanowska, R Weibel, E Lester and R.J. Hansman, Massachusetts Institute of Technology, Cambridge, MA

Finance & Deployment



Air Navigation Service Charges in Europe

- Current European charging scheme “benefit & pitfall” analysis
- SCs are the main revenue source for ANSPs
- Cost per IFR flight: \$440 US vs €742 EuroControl area
- Period 2000/07 shows large variability in unit rates across charging zones (complexity, staff costs, 9/11, oceanic charges, cross-subsidies: terminal costs passed as part of en-route charges)
- New EC Regulation 1794/2006 a major step in SES implementation as it seeks to “*ensure that charges levied are fair, transparent & reflect the real cost of services*”, being applied from 1st January 2007

Finance & Deployment



Air Navigation Service Charges in Europe

- New regulation introduces separated en-route and terminal charges, and introduces concept of *charging zone* (volume of airspace with a single cost base & unit rate)
- New features, incentive schemes (enables SC modulation as a function of day/night, equipage, use of non-congested routes etc) plus improved consultation process with airspace users (eg ANSP investment plans)
- Impact on airspace user behaviour?
- Benefits: SES Functional Upper Blocks > FL285 (European Upper Airspace) can be configured as a cross-border charging zone
- Pitfalls: will vertical differentiation penalise regional users (shorter & lower flights)
- **Need for Charging Schemes compliant with cross-border & integrated architecture air traffic taking into account airspace users requirements**

Finance & Deployment



The Dynamics of Air Transportation System Transition

- Identify dynamics of the Air Transportation System to understand barriers to change and opportunities for successful transition
- Feedback Model of Transition based on 13 cases of historical transition in the US AT System
- Model models stakeholder cost-benefit dynamics and the decision making process (negotiation between stakeholders) on new system capabilities (e.g. procedures, aircraft & ATC capabilities and ground infrastructure changes).
- Implementation complexities: safety review & environmental review process, stakeholders differences during implementation, deliberate blocking of transition and implications of long implementation time.

Finance & Deployment



The Dynamics of Air Transportation System Transition

- Runway construction: - airport delay by + capacity, airlines, airport authorities, public & commerce vs local communities at loggerheads, protracted environmental review, completion between 10 to 30 yrs.
- ADS-B Capstone, cost-effective positional coverage, use of incentives to subsidise equipage cost, stakeholder alignment brings about accelerated timetable for change.
- ADS-B Gulf of Mexico, benefit changes with rate of equipage (critical mass), small scale implementation provides opportunity learn about potential safety issues.
- Barriers: need to avoid “technological uncertainty” and lack of confidence in the deployment of infrastructure to support Ops, used by contrary stakeholders to stall or block change.
- **Need to strategically and effectively transition as an enabler for a the next generation AT system in both US & Europe**

Finance & Deployment

who moved the ATM cheese?



Concluding Sketches (& issues for ATM 2009...)

- “Do Nothing” is not an option as system capacity restricts development in many areas
- ATM will undergo a profound period of change in the next decades, enabled by significant investments by US/Europe Administrations (NextGen development: \$4,6B in 5 years, SESAR development: €2.1B in 8 years)
- Historically...
 - ATM change has been driven by safety, NextGen/SESAR development is driven by capacity (more susceptible to stakeholder conflicts of interest). Are interactions between all stakeholders well understood to facilitate implementation? Are we heading towards an environmental “high-noon” & what to do for conciliation?
 - Track record in ATM change is slow change. How can we provide incentive mechanisms to speed up implementation to deliver the capacity gains when they are needed? How can we generate “critical mass” confidence to enable change?
- Do we have the right charging schemes set up for airspace users in the NextGen SESAR “one system” cost-efficient era?