

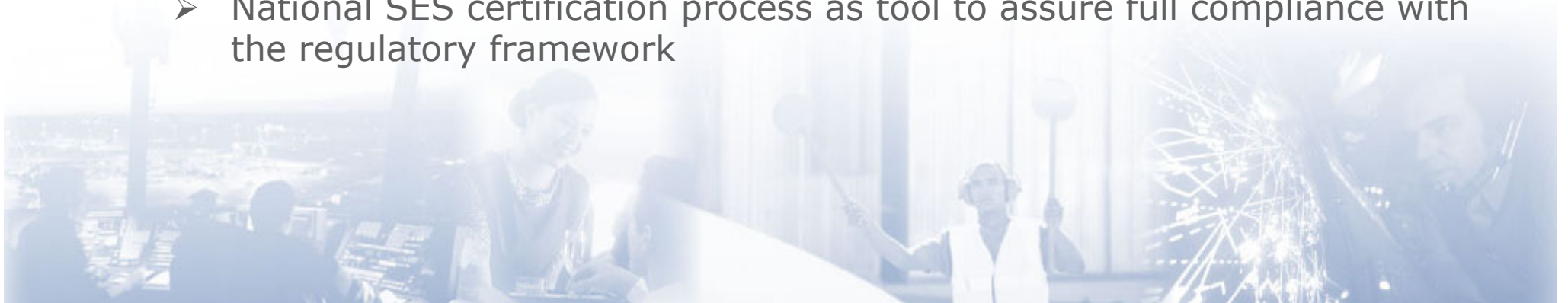
Implications of Liberalization on ATC and the role of Technology

An ANSP view from ACR
European Aviation Conference
13 and 14th November 2017
Dublin, Ireland

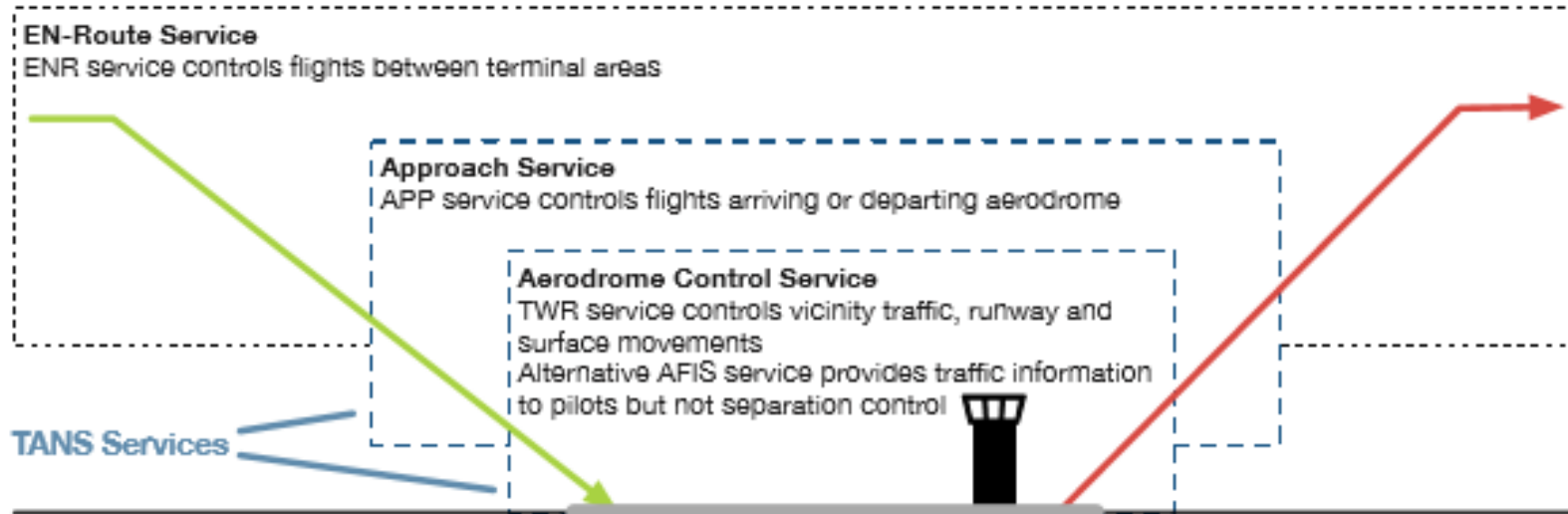


What is meant with liberalization in ATC ?

- Liberalization describes a deregulation of the ATM market, whereby deregulation implies the reduction or elimination of government regulation which is replaced by market mechanisms.
- The underlying motivation & rationale for deregulation is to achieve increase in competitiveness, higher productivity and lower prices
- Within ATM, deregulation is aimed at un-locking the market for the open offering of ANS (ATC /AFIS) and support services and the
- Prevention of market monopolies unwilling (or unable) to improve cost-efficiency and service quality (customer focus)
- Safety Regulations not affected by deregulation of the ATM market
- SES regulations setting frame for competition and aims at creating a 'level play field'
- National SES certification process as tool to assure full compliance with the regulatory framework



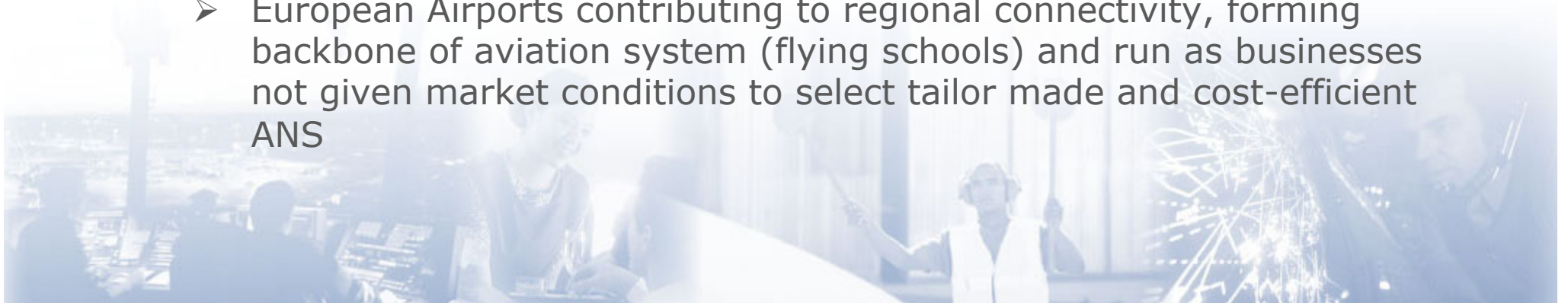
Where ANS liberalization is focusing on



- Within ANS: Distinction must be made between the operational environments: En-Route vs. Terminal ANS (Approach, Aerodrome Control Service)
- TANS a natural candidate: low(er) operational complexity, low fixed costs, low investment threshold (CNS infrastructure with Airport)
- No sovereignty issues
- TANS not a 'natural monopoly'
- Regional AD /midsized airports outside the performance regulation (below 70'000 IFR /p.a)

Why ANS liberalization is necessary

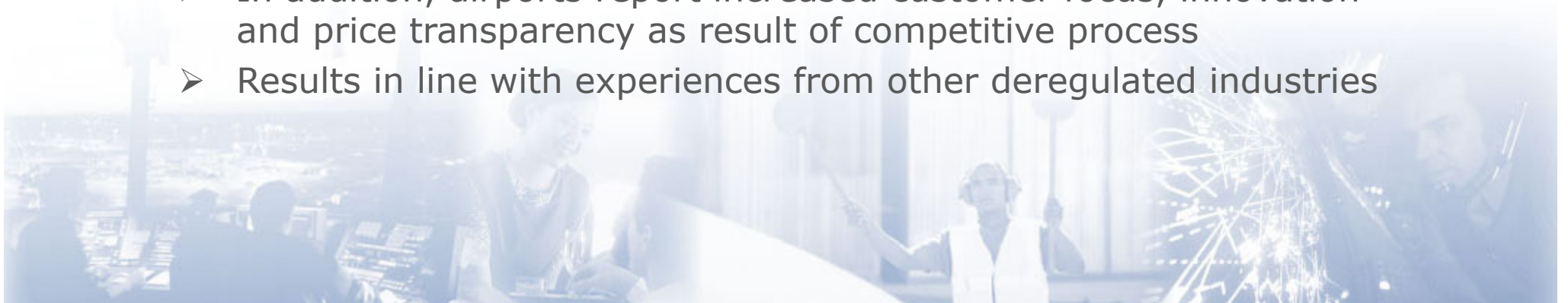
- **47%** of Europe's airports are loss making
- **76%** of European airports below 1M PAX are loss making
- Correlation between Airport size and profitability: ANS Provision Costs for smaller Airports proportionally higher than for larger airports and typically in the range between **20%-50%**
- In monopoly markets ANS costs for airports are inelastic
- Operational Cost reduction at airports only achieved through:
 - Reduced Opening Hours and
 - Reduction of services offered
- EC focus primarily on the 'Network' and ANSP efficiency through top-down performance & charging regulations emulating market conditions
- European Airports contributing to regional connectivity, forming backbone of aviation system (flying schools) and run as businesses not given market conditions to select tailor made and cost-efficient ANS



Does T- ANS liberalization work?

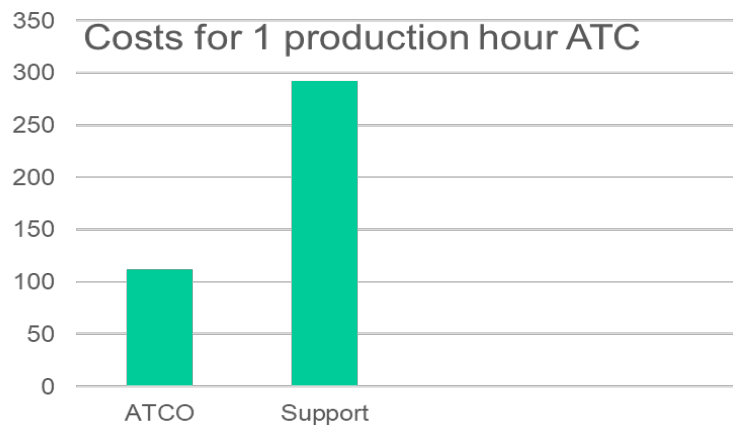
Country	Service	Cost Savings
Spain	TANS	46.7%
USA	TWR service at 253 VFR Airports	74%
Sweden	TANS	30-50%
Norway	TANS	35%

- Lower costs as main benefit as result from increased competition in the market
- Data on UK and Germany not available but estimated to be in the range of between 30 % and 40%
- In addition, airports report increased customer focus, innovation and price transparency as result of competitive process
- Results in line with experiences from other deregulated industries

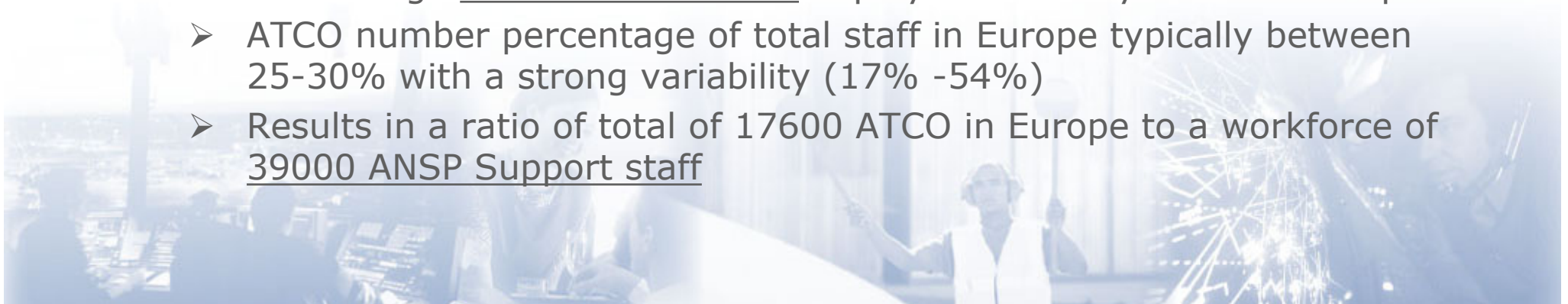


How are lower costs achieved by ANSP?

- On average 69% support costs are the main cost element for ANSP
- ATCO employment costs per ATCO hour is **EUR 112** (average SES)
- While unit support costs (per unit/hour output) is **EUR 292** average SES, skyguide: 546 EUR /composite flight hour)



- On average 2.2 additional staff employed for every ATCO in Europe
- ATCO number percentage of total staff in Europe typically between 25-30% with a strong variability (17% -54%)
- Results in a ratio of total of 17600 ATCO in Europe to a workforce of 39000 ANSP Support staff



How does that relate to the US?

	2007 Europe	2007 US	2013 Europe	2013 US	2015 Europe	2015 US
Total staff			58000	35500	56300	31501
Non ATCO staff	?	?	39800	20360	39000	16404
ATCO	16 702	13 169	17 554	13 218	18330	12959

ATCOs	2007	2009	2011	2013	2014
Europe	16 702	16 891	17 227	17 554	17 513
USA	13 169	12 769	13 279	13 218	12 959

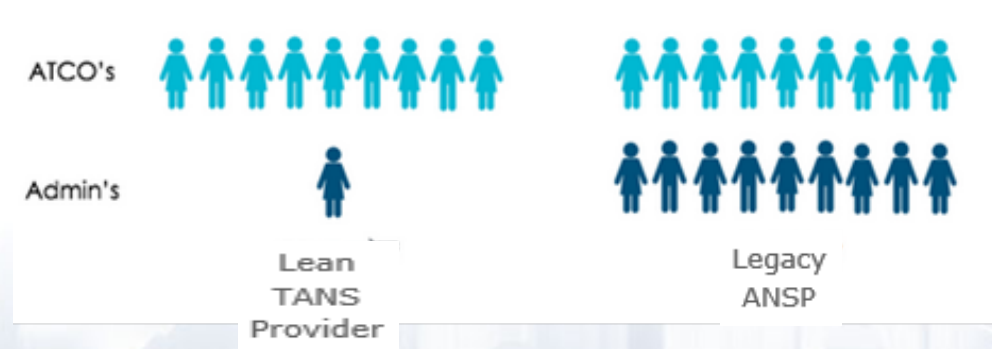
- ANSP in Europe with oversized organizations - in particular in the support segment
- Staff costs (ops /non-ops) as main cost driver
- Fragmented institutional framework in Europe contributing factor?

Controlled flights	2007	2013	2015
Europa	10 mil	9,6 mil	9,8 mil
USA	18 mil	15,1 mil	15,3 mil

What do these numbers tell us?

	2007 Europe	2007 US	2013 Europe	2013 US	2015 Europe	2015 US
Total staff			58000	35500	56300	31501
Non ATCO staff	?	?	39800	20360	39000	16404
ATCO	16 702	13 169	17 554	13 218	18330	12959

- US ATCO with higher productivity despite much lower support bodies
- As overhead/support costs drive system costs – savings are achieved through lean structures and reduced overhead (analogue LCC)
- Not safety margin reductions or operator compensation



- ❖ Impact of automation / new technology on staff numbers not visible in Europe over the last decade (both: ATCO – Support)?

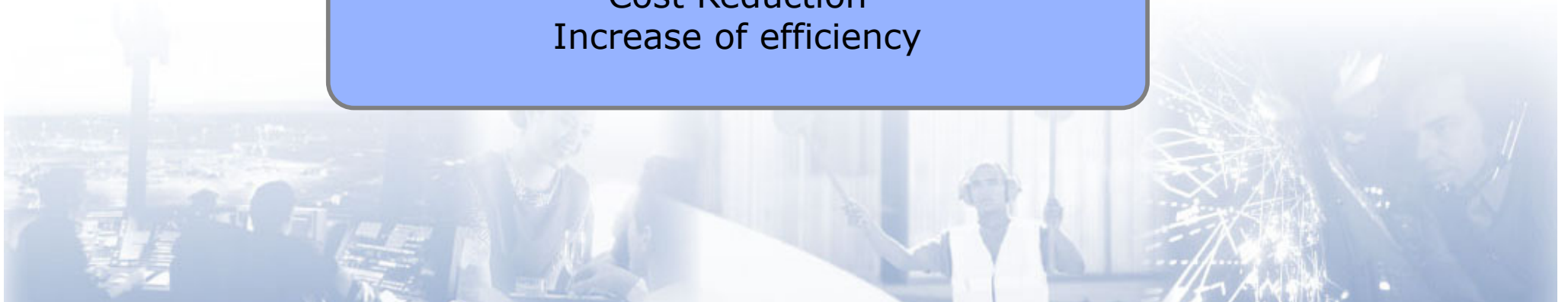
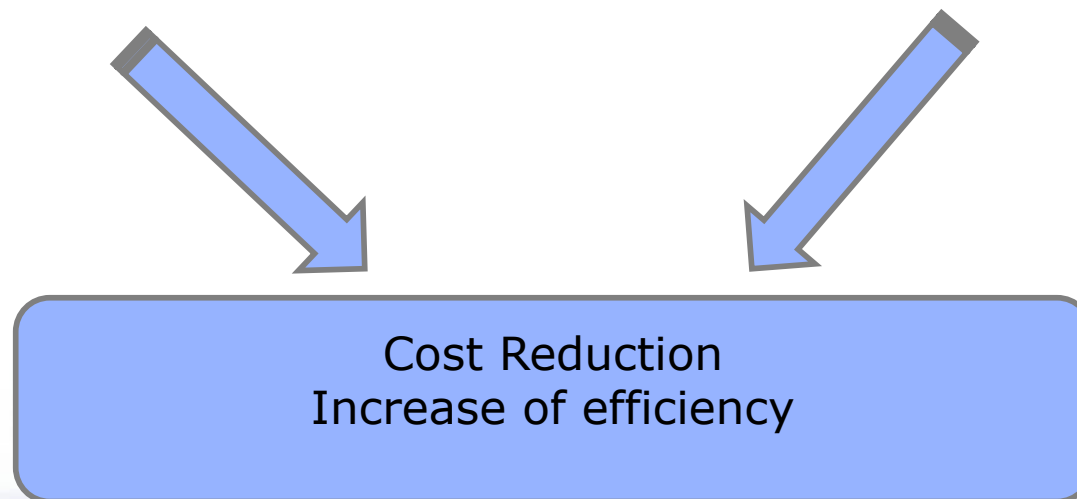
Goals of Liberalization and new Technology in ATM

Liberalization

- Innovation, cooperation with airport operators
- New business models
- M&A activities
- Market mechanisms

Technology

- Productivity increase on operational sharp end
- Increased robustness of OPS
- Safety gains, redundancies



Goals of Liberalization and new Technology in ATM

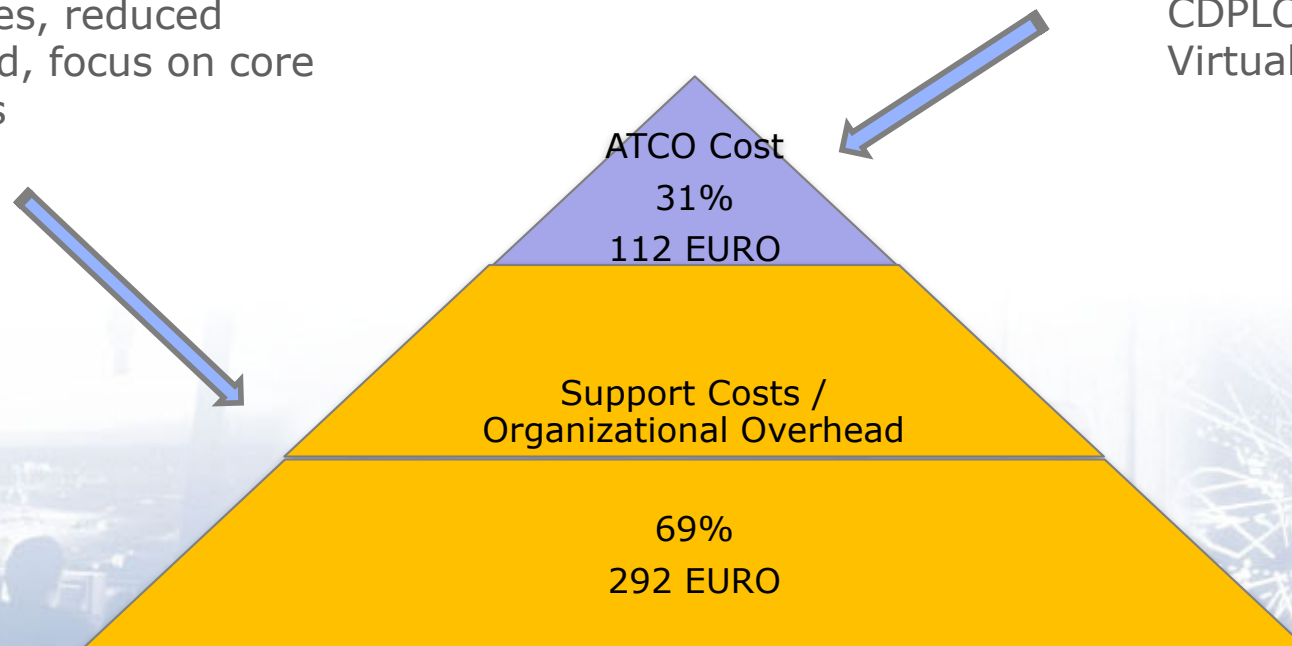
Hypothesis: Liberalization and technology do not address the same cost sources

Liberalization

- Lean organizational structures, reduced overhead, focus on core business

Technology

- AMAN; DMAN, SMGCS, CDPLC, Remote Tower, Virtual Centres .



Example: Remote Tower Concepts

- Remote Tower Concepts (RTC) as 'golden bullet' for the industry although still in R&D stage
- In Europe RTC is developed in parallel by LFV, NATS, DFS, Avinor, ENAV, and different industrial providers
- Very high up-front investments required, business cases with very long time horizons
- RTC benefits in possible ATCO reduction, robust ops in bad weather, reduced airport infrastructure costs etc.
- Impact on organizational costs: development of RT divisions, expansion of IT division, mobile 1st level maintenance teams etc. unknown.
- RTC likely to impact ATCO hour costs – will it add to support costs?
- Will overall ANSP costs be reduced through RTC?
- Do airports have a choice to opt for RTC or not ?
- If RTC yields cost reductions of 30% - lean TANS organizations can further reduce costs as RTC is the 'means' to transport ANS to customer (without up-front investment)

Summary of ACR view on a competitive ATM market

- Market Deregulation and introduction of competition in TANS is not the 'golden bullet' that solves all problems but focuses on cost savings for Airports required to provide ANS



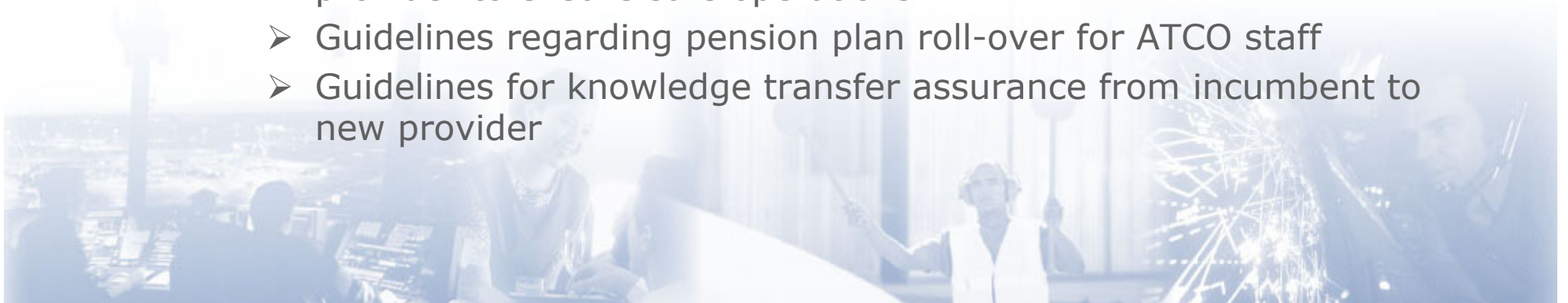
- Assuming a 35% average cost reduction brought upon by introduction of competition, potential (theoretical) savings to European Airports around 600M Euro annually (21% TANS costs of overall ANS costs)
- That represents 7.35% of the total European ANS costs
- Annually

Summary of ACR view on a competitive ATM market

- Deregulation and competition does not tackle externalities such as capacity issues or the fragmented institutional framework but focuses primarily on cost savings achieved through competition
- Competition within ATM not in contrast to but complementing element to Performance regulations: Another tool in the toolbox
- Liberalization of (T)ANS yielding benefits to the European airport industry
- Application of new technology to reduce costs not excluding liberalization but has the potential of further reducing costs
- Elimination of organizational inefficiencies and support cost reduction is expected in a competitive an innovative provider market
- Low risk for national markets opening for competition as SES regulatory framework assures full and unconditional compliance with the regulatory framework.
- Examples of TANS competition provide with strong case for opening of market?
- How many more examples are needed ?

Summary of ACR view on a competitive ATM market

- EC regulatory framework must assure a level playing field for competition
- Guiding principles for a competitive market shall be applied by all member states and include rules for (not limited to):
 - Ownership of airport infrastructure blurring cost allocation calculation
 - Pricing of IPR elements such as Operating Manuals and Procedures
 - Pricing rules regarding ‚public service‘ data: radar data, AIM services
 - Strict rules ensuring smooth transition from incumbent to new provider to ensure safe operations
 - Guidelines regarding pension plan roll-over for ATCO staff
 - Guidelines for knowledge transfer assurance from incumbent to new provider



Thanks for listening!

**Marek Bekier
ACR**

**“Do not go where that path may lead, go
instead where there is no path and leave
a trail.”**

Ralph W Emerson

