



Competition The concept of separating support from core services is gaining traction. Do you believe that the attitude of European ANSPs is changing in terms of being open to different business models?



Lallouette, Thales European ANSPs are more and more open to different service business models. We perceive an obvious trend towards focusing more on their core activities and also looking at industrial partnerships.

There are of course some differences among the different ANSPs depending on their culture and depending on their situation including but not limited to the fact that they are private or public organisations.



Ramu, NetJets Redundancy of support services is a significant cost burden in the European air traffic management. Competition among organisations

providing support to ANSPs will enable this burden to be reduced, but the harmonisation of requirements and practices must come first. This harmonisation seems to be a long process, maybe too long. It is important for all operators that the cost-efficiency of the European ATM continues to improve.



Gammicchia, ECA There is a huge difference in the way European ANSPs are being administered, so not surprisingly this reflects in their

approach to different proposals regarding the unbundling of non-core services.

From the user point of view, our position is that whoever provides the service, this has to be a service with a high level of quality, and that considering non-core services something similar to 'ancillary services' is not a good approach.

This does not imply that we prefer one approach to the other but we would like that this type of services, mainly related with Communications, Navigation and Surveillance, are referred as core to the network.

These services will be paramount to make operational a number of key pillars of the future Single European Sky, such as the various components of SWIM and an optimised use of up-to-date meteorological information, all elements which are absolutely needed for the success of 4D Trajectory.



Ravenhill, Helios Performance Regulation does not seem to be working in Europe. EU targets get watered down by member states; performance

plans, containing local targets, do not contain sufficient challenge for ANSPs to improve cost-efficiency and EU measures to increase that challenge are again diluted by member states.

Clearly the whole system needs to be overhauled – with a strong independent economic regulator able to shine real light on to inefficiencies and fragmentation, and set binding targets. But ANSPs must also have the freedom to respond to the challenge. As with all businesses this should include the right to outsource ancillary services or provide them in-house in order to reduce overall cost.

Regulation should focus on outcomes not dictate solutions. We are seeing an increase in collaboration, particularly in Northern Europe with NUAC, Entry Point North, Borealis and COOPANS leading the way in reducing fragmentation and hence cost.

Signs of real competition aren't really evident in support services – but interestingly they are in the provision of ATC at airports: Spain, Sweden and Germany have all recently joined the UK in having an open market approach to provision of tower services at least at some airports and long may this trend continue.

There is no silver bullet: improved cost efficiency in a complex political environment like Europe requires a mix of regulation, competition and collaboration; a balance between local, regional and pan European services; but most of all political will.



Stejskal, ERA It is the only possible model if we want to increase economic efficiency and performance, accelerate implementation of new

emerging technologies. On the other hand, the manufacturing industry has to accept responsibility and make their solutions more transparent.



Higuera, Ineco The greatest challenge that the European ANSPs face nowadays is how to respond effectively to the changes in the provision of air navigation services within the next decades.

Since they recognise the need of such changes through their participation in programmes such as SESAR, they demonstrate their intention to adopt different business models that may adapt better to the new operational, technological and organisational needs.

As ANSPs are required to work together closely while ensuring coherent and coordinated business decisions and actions, the different business models should show certain commonality despite the manner in which those providers are constituted. This will also allow comparing results in terms of the value of the provided services to airspace users.

Also, while ensuring that safety remains the main objective of their core business, ANSPs are required to establish different service business units that may compete in the market in a controlled context.



Puetz, Quintiq We see a development, not just in separating support from core services, but also the move towards value added services to

third parties. Many ANSPs have become aware not only of the need for cost reduction, but also the need for additional revenue creation.

ANSPs in Europe are already providing controller training services, promoting the knowledge, capabilities and interactive behaviour that is needed to meet the requirements of the EU directive.

Besides training services, existing ANSPs are also offering consultancy services for anything from ATCO recruitment, development and introduction of training concepts and systems, all the way to the implementation of quality management systems.

With the introduction of virtual control centres, ANSPs will see their core services expanding as their airspace expands but this will, if anything, only solidify their additional focus on value added services.



Clinch, SITA Separating support services such as CNS from core ATC centre services does not automatically imply competition because the ANSPs can create cooperatives to provide support services.

European ANSPs recognise that if the organisational challenges can be overcome it would be of benefit to have regional cooperatives provide support services. However, the ANSPs want to control how the support service integration is done to achieve performance targets instead of having to follow micro-managing rules that fail to take into account real world circumstances.



Contingency In light of the Chicago centre fire, what lessons should the industry learn and what developments or improvements, if any, are needed in providing service contingency?



Higuera, Ineco By focusing on ATM and not on human resources practices, the main lesson learnt should be the fact that primary and backup systems should not be placed at the same location.

Not, a second measure may be that one may take over the flights controlled by her. In this case, the use of a distributed network would indeed improve the centre in the event of any contingency. These kinds of solutions are currently under development in different R&D initiatives such as NextGen.



Clinch, SITA The fire set at the FAA's Chicago ARTCC took out the sole telecommunications room cutting off access to CNS and adjacent centres. One lesson

ATC centre systems should be connected 'ring' that connects to at least two physically separated hot standby telecoms rooms with separate access security making it impossible for one person to get into both rooms.



Ramu, NetJets Without commenting on the circumstances that caused this accident, the lack of redundancy of a control tower in a large

ATC is a known problem.

A virtual contingency tower, which is the ability to provide airport traffic services from a remote location, is being developed to provide backup solutions and maybe in the future to minimise the impact of such events. Nevertheless, business aviation is less affected by such contingencies as our business model enables it to propose flexible departure

and destination airports, for instance with the use of small proximate airports. That said, virtual control towers are also a promising technology for small airports struggling with the cost of infrastructure.



Gammicchia, ECA We are entering in a new, technology-intensive era which offers a lot of possibilities to cope with foreseeable situations, like the sudden impossibility to

continue providing a service from a certain location for whatever reason.

We have already seen the use of remote piloting or controlling, in the case of RPAS and remote towers. One of the goals of the remote tower concept is the contingency aspect, having a backup installation that supports the main centre.

As always, planning for the unforeseen is the trickiest part, so a big effort has to be made, especially the protocols regarding when to change to the back-up mode, who should be in charge and how this new configuration should be integrated in the surrounding system. It is also crucial to convey this information to the crews in a timely manner so that the level of service is secured, but always trying to keep it as simple as possible.



Ravenhill, Helios Reflection on Chicago should focus on two issues. Firstly are contingency plans in place to restore an air traffic service? The FAA was able

to provide a contingency service from neighbouring centres during the two weeks it took to restore Chicago to operations.

All ANSPs should have clear plans to handle major system outages that can be deployed within hours of a disruption. Chicago is a good reminder of the need to review and test those plans regularly.

The level of service available from a contingency plan is a policy issue that should be well understood by the airspace user community – after all they pay for the extra capacity when it is not being used.

Secondly, the fire appears to have been started by a contractor inside the centre – insider sabotage is a key concern from a security perspective. Technical measures can help protect ATM assets from cyber-attack but vigilance is also required to ensure that systems are not compromised from the inside.

Cyber-security could become the new *bête noire* for service continuity as the century progresses. The Chicago incident should cause all operational stakeholders to review their business continuity plans against the changing geo-political climate.



Stejskal, ERA The lessons learned should be more on the side of service providers. Any system even perfectly secured can be hacked by any means. The

question should rather be, in light of Chicago centre fire how can we achieve decentralisation to eliminate a single point of failure? We should start working on the sensor side and go further, distributing data to multiple nodes and creating natural redundancy in the form of decentralised data management points.

There are more and more complex ATM system designs mitigating single point of failure. Such ATM systems focussing on surveillance sensors redundancy as well as contingency centres including data fusion, processing as well as control working positions. The concept of the remote tower is definitely one of the things to be pursued and discussions should take place between ANSPs to share experience and best practice, when implementing such systems.

Work Manager How do you see the role of the Network Manager evolving in the long term?



Ravenhill, Helios The Network Manager is a success story from SES2. Taking a network view in both the planning and operational phases and

working collaboratively with ANSPs to reduce the risk of disruption has clearly led to significant operational improvements as well as the efficient use of scarce resources. Evolution will be along two axes.

Primarily the scope of the Network Manager

should grow to cover additional network functions where these are best provided at pan-European level – these could be flow management, resource allocation and even operational services. But at the same time, on the second axis, governance arrangements need to evolve to ensure strong involvement and leadership of the operational stakeholders and in particular airspace users. In this way the growing mission of the Network Manager will be supported by its customers.



Stejskal, ERA The Network Manager role is a natural result of SESAR activities since the European Commission needs to see evidence of its huge R&D investment.

The question is if the SESAR programme is still fit for today's requirements? Is the central planning of R&D activities the right way of moving ATM in Europe forward or would it be better to let the market evolve through stakeholder initiatives?



Higuera, Ineco The main function of the Network Manager is to allow optimum use of the airspace in the Single European Sky and ensure that airspace users can operate preferred trajectories, while allowing maximum access to airspace and air navigation services.

The evolution of the Network Manager role in the long term is linked to the progress on the implementation of FABs and SESAR and on the optimisation of its functions e.g., defining the ATFM measures when no agreement can be made about the delay sharing, reinforcing coordination when certain unplanned disruptions occur in the network. So any effort made in accelerating the implementation of those initiatives will definitely have a positive impact in this area.

Further collaboration with ANSPs and operators in the decision-making processes at

local, regional/FAB and pan-European levels will also be needed in order to ensure that objectives are met.



Clinch, SITA If differentiated pricing was ever introduced to distribute flights more evenly, the Network Manager would be the only entity able to manage it

because the pricing would need to cover a flight's whole route through the European airspace system.

It would be too complicated for airlines to manage varying charges from individual ANSPs managing just a part of a flight's route.



Ramu, NetJets The role of the Network Manager is to facilitate communication and streamline the operation at European level. It is important that the Network

Manager function understands the different business models. In particular, for business aviation, it is important that the requirement for flexibility is understood and facilitated.



Gammicchia, ECA The Network Manager should be empowered to perform an even more executive role in preserving the network performance be it for efficiency or safety. It should also have the capability to engage further with each ANSP with the aim to guarantee that any development and/or technology deployment within their area of operations takes into account the impact at network level.

Airspace design, use of airspace and temporary restrictions are among some of the topics where the Network Manager should remain constantly involved and may even assume a greater role.

Community Do you believe that the European ATM community has become - or risks becoming - ever more fragmented?



Stejskal, ERA Since there is no major strong unifying element within the European Union, the ATM community has no reason to become more unified.

Programmes running under the Single European Sky offered the opportunity for the ATM community although it has turned more into club of key players and has not broken historical barriers.



Higuera, Ineco Initiatives that increase fragmentation or that weaken European airspace integration forces us to move in the wrong direction.

The origin of this fragmentation may be found in the nature of ANSPs as commercial businesses although several attempts are in place to promote a higher coordination in their service provision or even the centralisation of several services. Economies of scale, seamless service and total interoperability must be targeted and achieved if we want to ensure that the service is provided in a safe and efficient way.



Clinch, SITA The European ATM community's main issue is not fragmentation, it is that the Single European Sky regulations ignore many national political and social constraints from which the ANSPs cannot escape. The governments should have

realised by now that optimising flight efficiency and reducing ANSP charges face different constraints and should be independent objectives. Making airlines believe that improving flight efficiency will automatically lead to reductions in ANSP charges is setting expectations that will never be met.

Lallouette, Thales Some obvious progress has been made in the R&D through the SESAR JU and one could expect more progress thanks to the setting up of the Deployment Manager.



Ramu, NetJets We do hope that all the efforts to rationalise, to work together, which is the essence of the Single European Sky, that these efforts will continue to bring

benefits to all. For this, the consideration of all stakeholders, even the minorities, is essential for the acceptance of the changes.



Gammicchia, ECA As the FAB initiative is not performing as expected, there is a clear risk that the final outcome is a more fragmented situation with even more actors.

However, the problem is not so much with having many different entities or actors even though there is always the danger that it would lead to a less efficient setup. The problem rather is that there is a risk of a lack of clear assignment of roles as well as communication barriers, not to mention the potential increase in bud-

etary resources to run the system.

Lack of harmonisation when designing procedures, unsynchronised technologies deployment and poor systems interoperability are greater threats as they are the elements that produce fragmentation. This can only be overcome with a sound governance scheme.



Ravenhill, Helios It is a risk but I do not believe it will happen. Europe has just been through a deep and prolonged recession - this puts all elements of a value chain under pressure. For ATM, the exposed end - the airspace users - have had a particularly rough time.

ANSPs have tried to respond by reducing costs but this is an industry that suffers from limited elasticity and the airlines haven't always appreciated or even noticed the efforts. Moving forward, as we climb out of the recession and seek to modernise ATM, we need to look back to the call of the SESAR Definition Phase for a collaborative Performance Partnership to steer the industry.

The Deployment Manager is the nucleus of such a partnership, but we need to go further and ensure that all consultation mechanisms are effective and streamlined so that consensus is built and maintained for the good of the industry at large. You strengthen a chain by strengthening all the links; not weakening the stronger ones.



Relations Should the European Union have better arrangements for involving non-EU countries in the governance of the Single European Sky? And if so, why?



Higuera, Ineco Aircraft coming to and from the EU will be flying from/to non-EU countries so those countries will be impacted by the new operational concepts and

technologies. In that sense, any further coordination of working arrangements with neighbouring states will support the introduction of the pan-European approach and the expansion of the implementation of SES and SESAR so greater benefits can be obtained at network and local levels. Regarding governance, SES membership may be further extended to non-EU States in order to participate in the preparation of regulation - for instance, in the context of network manager functions that involve all Eurocontrol member states facilitating harmonised investment and infrastructure. This measure, together with others related to governance, should be reconsidered when assessing the success of the implementation of the second SES package.



Puetz, Quintiq While we acknowledge statements of the EU transport commission effectively stating that the SES initiative cannot stop at EU

boundaries - that it needs to extend SES principles, coordinate closely with the US systems and with emerging markets in Asia - it might add complexity to an already lengthy implementation. There are already a fair amount of stakeholders involved that could make or break the implementation of the SES. Therefore, it might be better to concentrate on the heart of the matter, which is getting all of the EU ANSPs involved and getting them all to agree on best practices and the tools involved.

I am not saying that we should not take into account certain key procedures and processes beyond EU borders in decision-making, but a step-by-step approach. At the end

of the day, it's a matter of focusing on what works best within the EU. Once that has been determined and all stakeholders are on board, we can start considering cooperation and coordination with neighbouring regions.



Clinch, SITA The EU Single European Sky processes seem to work reasonably well for Switzerland and Norway. The most important SES governance issue is probably the continuous clarification of the role of Eurocontrol.



Ramu, NetJets It is important that solutions are adopted by the wider global community. Different requirements for the same solutions must be challenged and when possible harmonised. Aircrafts are operated worldwide, and only solutions that can be operated everywhere will become efficient solutions.



Gammicchia, ECA Boosting wider cooperation can obviously bring nothing but better results that will help enhance the concept and achieve SES goals. But proper care should be exercised not to fall into a scenario where these cooperation mechanisms render the whole initiative inefficient and less agile.

So we should not be looking into how to modify the governance mechanisms of the SES to allow states from outside the EU to enter, but to enforce these cooperation protocols that give added-value to the initiative.



Ravenhill, Helios If you consider Single European Sky to be a policy of harmonisation and optimisation, then clearly the wider its geographic scope

then the larger the potential benefits. The SES area is already much wider than the EU29. The ECAA and EFTA bring in another dozen or so countries and the EU has a positive attitude to expanding SES through bilateral aviation agreements.

Of course improvements are possible - the timeline for adherence to SES rules never seems clear for the non-EU states and on occasion the applicability of certain rules is debated. Operationally, governance arrangements, for example, the Network Manager and the Deployment Manager, are and should be open to non-EU members.

Rulemaking is more complex. Rules are agreed through a vote of the Single Sky Committee - made up of representatives of the EU member states with third countries limited to observer status (if they are allowed in at all). Opening up this arrangement to non-EU States seems overly problematic.

Non EU-states sign up to the SES legislation in return for access to the European aviation market - I don't think voting on detailed technical rules would change the equation. What the Commission must do however is to ensure that open and transparent consultation mechanisms are applied in the drafting process so that all involved parties are heard before a rule is adopted.



Stejskal, ERA Yes, for sure.

There is only one airspace and should therefore evolve at the same time. An example can be seen in the NextGen and SESAR

initiatives which have almost common regulatory frameworks.

Non-EU countries could pose new challenges which has been ignored by a self-centred EU community which might cause issues and lead to additional investment in future. The question is, should the EU sweep its own doorstep in isolation?

Q70: What technology improvements do you see as being useful to prevent further MH370-type disappearance?



Clinch, SITA Preventing the disappearance of aircraft is different from preventing whatever caused the MH370 aircraft to stop flying its normal

path. To prevent disappearing from all surveillance sources the Emergency Locator Transmitter (ELT) should be modified to trigger in flight if it detects the transponder has stopped working.



Gammicchia, ECA Without entering into the procedural part of the case as regards the need to review the protocols and compliance when an aircraft

is under surveillance, there is huge room for improvement with current technology.

We have to differentiate two areas where our efforts can make a real difference. The first one

is related to the tracking of traffic, and the main way to improve this tracking is to stop relying exclusively on ground radar stations and to switch to a satellite based network combined with ground based stations.

These stations provide signal augmentation for upgrading the accuracy of the position report when aircraft overfly land. This system would at least guarantee continuous tracking over vast oceans