

Question	Answer
<p>Could ANSPs ever co-share a space with dynamic pricing of flights akin to U-Space proposals to enable a competitive marketplace?</p>	<p><u>Ruben</u> It is not possible to answer this question that relates to a proposed mechanism in the context of U-space, and not to the Virtual Centre concept of the Airspace Architecture Study. The AAS does indeed identify the need for effective incentivisation but it does not dictate on any particular scheme, which is not for SESAR to decide.</p>
<p>If we will have in the future new ADSPs providing services, how will these new services be charged and to whom?</p>	<p><u>Thomas</u> The service models and the related pricing scenarios depend on the relationship between the ADSP and the ATSU. In some cases, it might be a "point to point" service with a Service Level Agreement, in other cases, it could be a distributed service located centrally (e.g. Services managed by the Network Manager). In an ideal world, the amount of data produced should be limited to a single generation of data and this should be paid for once by the user community</p>
<p>i would be very interested in these two projects regarding ATCO sector independent rating (documentations, présentations, work ,in progress...)</p>	<p><u>Ruben</u> More information on this topic is published on our website via https://www.sesarju.eu/sesar-solutions/generic-non-geographical-controller-validations . However, the solution has not yet reached V3 maturity and therefore has not been published as a solution.</p>
<p>Thank you for the interesting presentations. Those who have started to use virtual centres: Can you quantify the impact on performance areas (environmental performance, capacity, cost-efficiency)? Regula Dettling-Ott, PRB Chair</p>	<p><u>Thomas</u> This is not an easy question to answer. I think we should distinguish between what the Virtual Centre today brings. For the time, the effect is relatively low on both the Cost-Efficiency, which will become significant when we need to change parts of the services in the data centres. On the capacity question, this is not being resolved solely with Virtual Centres (today) - this needs other elements such as Free Route Airspace. In the future, we can expect the capacity to be balanced across the centres in accordance to the residual capacity across Europe.</p>
<p>The whole SESAR focuses on operational issues. Has also been taken into consideration the technical ones in terms of availability and reliability of the equipment involved including the network connecting all the entities involved?</p>	<p><u>Thomas</u> Yes, this has already been taken into consideration in Project 16-03, on the technical implementation of Virtual Centre. The provision of data will need to be encompassed in a service level agreements that consider the availability, integrity and continuity of the data. Again the scope of the SLA is dependent on the relationship between the ADSP and its users</p>
<p>COVID took everybody by surprise. Using it as an example is too oportunistic. Merging into less centres would be a risk that States and ICAO would not support. Look what happened to the New York oceanic centre with one COVID-19 infected person. All New York airports closed at the same time.</p>	<p><u>Thomas</u> Answered orally during the Q&A</p>

<p>One virtual center is the remote TWR. Some R-TWRs are already in operation although not certified as such, since the respective standards are missing. How legal is that and to which extent hazards could be brought about?</p>	<p><u>Ruben</u> This topic has been discussed at the previous webinar on Remote Towers. Please listen in to that recording to hear an answer from the RT specialists.</p>
<p>With all these new concepts of operation, do you foreseen an increase of Engineering and technical personnel's – ATSEP responsibilities and duties and some new and specific skills to maintain the implemented technologies?</p>	<p><u>Thomas</u> In the technical domain, expertise will change with time. Some components in ATM still operate on TELEX types of message exchanges for instance. I presume that the skill-sets of the ATSEPs will evolve to more digital competences. We also need to consider the environment and the type of data that is sourced and provided. Some functions could shift from the ATSU to the ADSP for instance.</p> <p><u>Maarten</u> Virtual centre technology certainly comes with a demand for new skills, as new interfaces need to be supported and boundaries of systems disappear to become services. These developments are not new, and have transformed technologies in other businesses (like banking), giving also the opportunity to harmonize and take pressure out of the skill management (e.g. you may find it easier to plan your skills around services (like IT service provisioning) than in siloed systems)</p>
<p>And, How all this match with the recent ANSPs "cost reduction" proposed by the EC? You'll need many experts out of the ops room fully dedicated to make it real. It Seems more and more virtual.</p>	<p><u>Thomas</u> In the current environment, 64 Control Centres are producing 64 sets of data. If and when we successfully transition towards a large scale use of the ATM Data Services Provision model, we can expect the cost of data generation to be focussed on a reduced number of entities, the ATSUs acquiring their data from one of the ADSPs. On the infrastructure side, the various services can be hosted externally and acquired on market conditions (under Service Level Agreements). The unification of the data production and the reduction of some of the components deployed at local level will provide the expected cost reduction. Service acquisition will be cheaper than investment costs on new infrastructure.</p>
<p>Will the ADSP apply SMS although it will not be a pure ATSP?</p>	<p><u>Thomas</u> ADSPs will need a specific certification to operate. They will also be under the Common Requirements Certification. I expect that the application for this certification will require the implementation of robust Management Systems. On the ANSP side, the requirement for external provision also requires that we can assure the quality of the the provided data or services.</p>
<p>Thomas, hwo do you deal with controller sector licensing when you swap sectors around between East and West ACC?</p>	<p><u>Thomas</u> We are looking at the specific requirements needed for our ATCOs to be able to operate the sectors on which they operate. We are active in the Generic Controller Validation projects that are running in SESAR. We need to synchronise the work done at local level to the one at the European Level. At the end of the day, our requirements will be similar to those of other entities switching airspace. Examples being NATS, the Finish-Estonian airspace sharing.</p>

<p>Is there a CBA that has been performed to support the concept? If yes what was the result? If not when?</p>	<p><u>Ruben</u> A high level CBA can be found in the Airspace Architecture study. Solution 93 will further refine this based on the updated operational use cases. The results should be expected by the end of wave 2.</p>
<p>There is also the difficulties with having WAC (wide-area comm.) implemented. Maarten will you cover this in your presentation?</p>	<p><u>Maarten</u> Yes, I will cover the architecture for Virtual centre for Voice communication, including Wide area communication aspects</p>
<p>Will the certification of a virtual center (V.C.) be carried out by NSA hosting it or by all NSAs of the States that could be using that V.C. i.e. for resilience reasons? Will also these NSA be involved in management of changes?</p>	<p><u>Thomas</u> In the certification process of EASA, all Europe Wide services are to certified directly by EASA (e.g. EGNOS). In the discussions with the European Commission this is one of the elements to be clarified. If one ADSP provides data to one ATSU, I presume the certification could be at national level. It becomes more complicated when several ATSUs located in various countries apply for certification of the ADSP</p>
<p>SESAR has been discussed since 2005, when do you think it can become reality and functional solution?</p>	<p><u>Christine</u> SESAR is a research programme that covers many different solutions. Many solutions have already been validated and are being deployed today. Have a look at the SESAR solutions catalogue on our website to get an idea on the solutions that are already being deployed today.</p> <p>Some examples of local deployment of SESAR solutions can be found on our website: https://www.sesarju.eu/in-practice</p>
<p>Since we have not been able to implement Free Route between neighbors FIRs yet, due to interoperability issues.. plus the rating & licensing, competency and sovereignty problems.. All these seems a bit "virtual". Can you give us a real hint about when would it be a "real" possibility?</p>	<p><u>Thomas</u> Virtual Centres are already a reality. Activities are ongoing in various locations in Europe. Where the current work is needed is the more dynamic allocation of the EU Airspace across the various ANSPs. This will be the work to be done in the next few years, leading up to the 4th Reporting Period under the EU Performance Framework under SES II+</p>
<p>Why this delegation of airspace is not already implemented today in states with several ACCs, with same type of system/HMI and ATCO licenses? Why searching for cross boarder solutions when looking at the European network, the main constraints could be overcome with inner boarder delegations.</p>	<p><u>Thomas</u> Fully agree</p> <p><u>Maarten</u> Virtual Centre is not only about cross border, Virtual centre concepts also apply to inner boarder scenarios, and there is certainly nothing that inhibits this within the work done up to now in SESAR. Benefits like infrastructure rationalization can be moved forward in a more quick manner applying virtual centre technologies</p>

<p>Two or more ADSPs will potentially be connected to two or more virtual centers (resilience reasons). Which is the entity that will certify these ADSPs ? Will be one (i.e. EASA) or more (i.e the NSAs of States hosting the Virtual centers) to be connected to that ADSP)?</p>	<p><u>Maarten</u> I think a pragmatic approach leads to success here: Certification needs to be done by the entity that hosts the ADSP, and typically we expect that this entity will go to the NSA of the state it belongs to. ATSUs that want to subscribe to the services of the ADSP can then present this certification to their local NSA, and ask for support if more additional steps need to be taken.</p> <p><u>Thomas</u> In the certification process of EASA, all Europe Wide services are to be certified directly by EASA (e.g. EGNOS). In the discussions with the European Commission this is one of the elements to be clarified. If one ADSP provides data to one ATSU, I presume the certification could be at national level. It becomes more complicated when several ATSUs located in various countries apply for certification of the ADSP</p>
<p>Cross Border issues are at least 50 years ongoing and are more an institutional than a technical issue. First priority is an institutional European framework which is a Member States issue. Where is this aspect in the studies?</p>	<p><u>Thomas</u> The AAS and also the Report of the Wise-Persons Group serve as input to the new proposal for a revised Single European Sky II+ Framework. The initial draft has been issued by the European Commission a few days ago</p>
<p>Good morning. On behalf of IFATSEA:1. Regardless of delegation that will be in place, how the legal problems will be addressed since the FIR will continue to be part of State's sovereignty? In case of an accident over a State will that State retain the responsibility as it is nowadays?</p>	<p><u>Maurizio</u> Currently existing Delegation is in place regarding "Annex A" of the Eurocontrol Common Format LoA provide a set of guidelines in which the delegation of provision of air traffic services between two States may be formally specified. It identifies at a high level the following issues that should be addressed in any LoA:</p> <ul style="list-style-type: none"> • Identification of the authority responsible for the provision of ATM services in the airspace • Scope of the delegation: ATC service, flight information service and alerting service • Radar separation minima • Special activities affecting the provision of air traffic services <p>The delegation process and the procedures itself involved States to agree bi-laterally. While this is not unreasonable in the current operational environment it does not provide common methods that can be adopted universally that advance the goals of interoperability and operational flexibility. Responsibility is in charge of the delegated ATSUs, either if the sovereignty will remain in charge of the delegator.</p> <p><u>Thomas</u> Such elements need to be resolved at the Commission Level. The delegation models must cover such elements. On a bilateral level, it is possible to define such parameters, as soon as we enter a real dynamic environment, the responsibility issues need to be handled in a unique and regulated manner.</p>

<p>To make the solution operational, How will be the ATCO get and hold a working license in cross border sectors and competency to keep working?</p>	<p><u>Thomas</u> answered above</p>
<p>How the introduction of Virtual centre will impact the training and the certification of the controllers?</p>	<p><u>Thomas</u> In the introduction made by Ruben, the work on two Projects to allow non-geographically bound ATCO licenses are being investigated. Further work has started at the beginning of this year and will continue in other projects. The intention is to provide a white paper to the regulators to prepare the flexibility.</p>
<p>good morning i do share previous concerns, interoperability, cyber security and sovereignty, and on that i'd like to add revenue Will an ANSP give up the income provided by that sector/sectors?</p>	<p><u>Thomas</u> The question regarding revenue distribution is still under investigation - from my perspective, the service provided should be paid to the provider.</p>
<p>OLDI has not been rolled out fully after 25+ years. Can you produce a realistic timeline for implementation of the Virtual Centres?</p>	<p><u>Richard</u> First task of the EUROCAE WG-122 is to provide this timeline through a clear strategy for standardisation.</p>
<p>Are there any cyber/security issues you have still to deal with? How do you guarantee safe data exchanges?</p>	<p><u>Thomas</u> We are looking at Cybersecurity. However, we must be sure to use existing standards whenever possible. Banking and other critical services are already exchanging data on a daily basis - we must take along the best practices.</p>
<p>How will you persuade national governments to give up sovereignty of airspace. What has been the ANSP and government reaction to the recent NSA independence proposal?</p>	<p><u>Thomas</u> I think the institutional arrangements need to be discussed with the States. However, this is not new. Skyguide controls 41% of our traffic beyond the Swiss national borders.</p>
<p>Before talking about all this, wouldn't be necessary to have actually interoperable existing systems among ANSPs? Interoperability is the real issue at the moment.</p>	<p><u>Richard</u> I will come back on this point in my presentation. To summarise, these 2 points are in a certain point independent, except for some Use Cases.</p>