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The Single European Sky Performance Scheme

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Highlights

Air Traffic Management in Europe could be performing better – and if it were, it would reduce delays, ticket prices and the environmental impact of air transport. The EU's Single European Sky (SES) legislation has introduced a performance scheme which defines mandatory performance targets for the Air Navigation Service Providers of EU Member States.

But, the process of defining the targets is complex and regulation is becoming ever more detailed. Are there ways to make this process simpler? Are the incentives of the schemes properly aligned? And is this type of 'economic regulation' even the right tool to address the challenges of the sector?

The targets for the upcoming five-year Reference Period are currently being defined. On this occasion the 9th Florence Air Forum gathered the relevant stakeholders in Florence to discuss the theoretical basis as well as ideas for the practical improvement of the SES Performance Scheme.



How to Better Align the Performance Scheme?

A Comment by Matthias Finger

This European Transport Regulation Observer reflects upon the discussions at the 9th Florence Air Forum

‘The Single European Sky Performance Scheme’ that took place in Florence on 15 May, 2017.

Air Traffic Management (ATM) is – at least until now – a monopoly, and as such it needs to be regulated. The European Commission has come up with a so-called performance scheme to regulate this monopoly. The Performance Review Body (PRB) advises and supports the Commission in setting up binding performance targets and thereby, in a way, acts as the regulator for ATM at the European level¹.

The performance scheme itself has a long history: its origins go back to the first Single European Sky (SES) package in 2004, which had four pillars, namely technology (which was delegated to SESAR), safety (delegated to EASA), capacity and performance, for which the then called Performance Review Commission (PRC) was created. This Commission issued a report in 2006, in which it recommended the creation of a performance scheme with concrete indicators. This performance scheme was subsequently integrated into the second SES package of 2009. To recall, this second package strengthened the Functional Airspace Blocks (FABs), which later turned out not to be that functional at all. It also created the central network management function which was delegated to Eurocontrol (see below), and it created an airport pillar with an Airport Capacity Observatory. And finally, as said, it set up the first reference period (RP1) of the performance scheme (2012-2015). In 2013, a new document entitled *Accelerating the implementation of the Single European Sky* was issued by the Commission, which later resulted in the SES II+ proposal. In it, the Commission aimed at strengthening the national supervisory authorities, at reinforcing the network manager (Eurocontrol) and at enforcing the existing rules. But it became obvious that the European

airspace could not really be defragmented and that the SES project had somewhat ended up in gridlock. Yet, in the absence of competition, everybody agreed that the performance scheme was the right regulatory approach. It was therefore agreed to engage in a second reference period (RP2, 2016-2019).

This 9th Florence Air Forum thus comes at the mid-term of the RP2. This is the time when the Commission is now planning for the third reference period (RP3, 2020-2025), for which some of the indicators chosen can be revised and the reference scheme can still be improved. The role of the Forum was, therefore, to critically look at the past and to highlight some perspectives for the next RP3. The following four considerations are especially worth mentioning and have to be taken into account during the next RP3:

- To recall, the performance scheme has four dimensions: environment, cost, delays (capacity) and safety. It would be worth examining whether the performance targets of each of these four dimensions are actually aligned, so as to give a coherent message to the regulated Air Navigation Service Providers (ANSPs). For instance, there is a correlation between cost savings and capacity improvements, as reducing delays by improving capacity normally creates additional cost. Furthermore, some data presented at the Forum seem to suggest that ANSPs are increasing their revenues without investing further into capacity.
- More generally, not only is ATM regulated but so too are airlines and especially airports, which are the other monopoly in the air transport system; it would be worth thinking about aligning the regulation of ATM or ANSPs with the regulation of airports. For instance the provision of tower services by national ANSPs is a way to cross subsidize regional airports. Auctioning of tower services could make this more transparent.
- The performance scheme is one of the incentive mechanisms for ANSPs; but there are others. For example, SESAR is creating all kinds of incentives by supporting technological developments. Are these incentives aligned with the incentives that the ANSPs are receiving from the PRB? Perhaps a closer link could be provided by

1. Tasks of the PRB are defined in [COMMISSION IMPLEMENTING REGULATION \(EU\) No 390/2013](#)



directly incentivizing the application of SESAR technologies in collaboration with other ANSPs. This could be done by somehow changing the focus from individual ANSP performance to system-wide performance.

- During the RP2, the activities of the network manager (Eurocontrol) were included into the performance scheme. However, the activities of an ANSP and the activities of a network manager are quite different, and it would be worth examining whether to differentiate the performance scheme for these two types of actors.

Everybody agrees that competition in ATM is the right tool to achieve the SES. However, there is gridlock of the SES, and competition will come from technological developments rather than from institutional changes. Furthermore, SESAR and other forces are promoting important technological developments in ATM, leading to new ways of providing ATM. The performance scheme must take these technological dynamics into account, namely by creating incentives that adopt such technologies, rather than stifling them.

In my opinion, the performance scheme could set further incentives for ANSPs to invest in modern technology, and it should actually incentivize technological developments in general.

Namely, it should establish a rewarding mechanism for those ANSPs that make a shift from CAPEX to OPEX. This would steer ANSPs towards procuring services rather than investing in physical infrastructure. More precisely, the performance scheme should incentivize the sharing of ATM infrastructures to ultimately make progress towards at least some centralized services across the EU.



A Summary of Discussions²

The 9th Florence Air Forum addressed the issue of the Single European Sky (SES) Performance Scheme. The Performance Scheme is part of the SES regulation and consists of binding performance targets for national ANSPs that are set at an EU level. Given the upcoming redefinition of the Scheme for the next Reference Period (RP) beginning in 2020 the Forum addressed four essential questions:

- Principles of economic regulation: what can we learn from the theory? What can we learn from other sectors?
- The Performance Scheme: can it be improved?
- The Charging Scheme: how to incentivise efficiency?
- Setting the targets for RP3: how can we make the process simpler?

Principles of economic regulation: what can we learn from the theory? What can we learn from other sectors?

Progress in the SES is long overdue, and achieving better performance has also been discussed at [previous Florence Air Forums](#). The focus on the Performance and Charging Scheme was chosen based on the current development of the redefinition of targets for the next RP but also because it provides an occasion to discuss the theoretical basis of such economic regulation. This context of regulatory economics provided grounds for a cross-sectoral comparison and the presentation of different types of past experiences. From an economic perspective, it seems useful to analyse the situation through the lens of rational choice as the “union bargaining model” proposes. However, several complexifying elements, most importantly the involvement of many different actors and the multi-layered institutional structure, need to be taken into account. As in other network industries, technological development will play a decisive role in the development of the sector.

The Performance Scheme aims at promoting the efficiency of the European Air Traffic Management (ATM) sector but also at promoting a set of reforms in line with the SES.

2. For more details on the content of the presentations given at the 9th Florence Air Forum, the summary of presentation and the presentation files are [available for download](#).

A key element is the introduction of competition in the sector, in some form. While the Performance Scheme does not prescribe specific organisational models, the push for increased efficiency should lead to the introduction of market elements at least in parts of the industry.

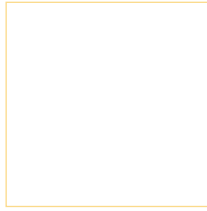
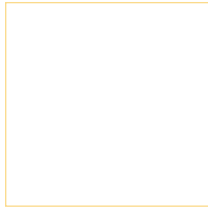
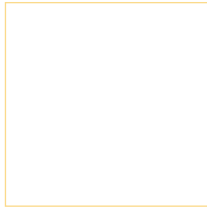
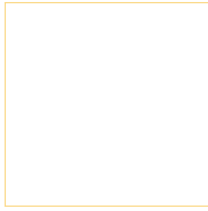
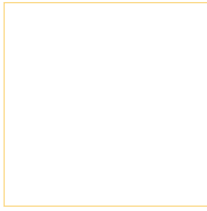
ATM is a monopolistic network industry. Therefore comparisons to other network industries can be drawn. There is, as in electricity, the option of introducing competition “for the market” by putting certain services out for competitive tendering. Another form of competition in ATM could be cross-national competition where service providers in different countries compete for air traffic.

Tendering services has been a success, for instance, in the local water sector where overall costs were brought down thanks to the competitive tendering of the multi-annual contracts for the provision of fresh and waste water services. Another comparison was drawn to airport regulation: here a price cap regulation has been successful in bringing down prices. The case of Dublin airport was pointed out: even after heavy investments in infrastructure, airport charges remained low. In the rail sector, conversely, even after many years of reforms, regulators have not been able to significantly bring down costs overall. In the telecommunication industry technology eventually allowed for real competition and significant price reductions for consumers.

Part of the discussion addressed why in ATM specifically, the reform process has been slow. Arguments could be summed up in three key elements:

1. Financial disincentives: all ANSPs in the EU are still state owned entities. Governments being their owners lack the incentive to push for reforms that would decrease ANSPs’ revenues.
2. Industry structure: in the ATM field there is, to some extent, collusion between providers and suppliers of ATM equipment. This system is resiliently protecting itself from outsider entries.
3. The social question: given the power of Air traffic controller unions a reform that would diminish the personnel’s future role is faced with strong resistance.

There was agreement that technology will be the most important driving factor in any future market developments. Most importantly, technologies related to ATM systems for drones are not in the picture in the



current discussion within the established ATM industry. Experience in other network industries has shown that availability of technology can start a process of market-based reform. Therefore, the SES RP3 should incentivise interoperability, comparability and technological innovation throughout the air transport industry.

Connected to the technological component, a prominent claim in the discussions was that the Performance Scheme needs to be closely linked to SESAR, incentivising concretely the uptake of technologies developed by this program. Such a closer link would be imperative also from a taxpayer perspective.

The Performance Scheme: can it be improved?

The second panel discussion was focused on a general overview of the SES Performance Scheme, and future development for the next RP. Some concrete examples as well as general observations were made during the discussion.

The Performance Scheme defines performance targets for ANSPs in four areas: safety, environment, airspace capacity and cost efficiency. The discussion mainly focused on the latter two areas.

One concrete proposal that was discussed with some controversy is the issue of introducing more dynamic pricing of ATM services, meaning charging higher prices for airspace use during peak hours. According to advocates of this proposal, airlines would be more inclined to contribute to a better usage of capacity. Airlines did not agree with this argument and pointed to scheduling issues such a system would cause. Overall there was agreement that this proposal can, if at all, only marginally contribute to a better usage of airspace capacity.

The problem of how to use the Performance Scheme to achieve a better or more optimal use of existing airspace capacity was central to the discussion. While there was agreement that there is currently a mismatch between capacity and demand, opinions diverged over the strategies to address the issue. The mismatch results, in part, from capacity planning that is not centralised. Therefore there are times in which there are not enough controllers available for some areas whereas in other zones controllers had nothing to do. Especially during night

time certain zones could, in theory, be closed making the capacity available at other areas. The proposal of flight-centric operations, which had already been discussed at past Florence Air Forums, was mentioned as a promising solution if implemented on a cross-national level.

Another element discussed regards investments. According to some discussants, the current system incentivises underinvestment for ANSPs as a way to maximise their economic surplus. According to numbers presented, ANSPs have in fact increased their revenues over the past RP. It was pointed out that this is, in a way, good news because it proves the Performance Scheme is working. The increased revenues are, however, not matched with increased investments. There is the question of whether the Scheme fails to address capital expenditure (CAPEX) as part of the cost-sharing system. This was discussed in more detail during the following panel.

A proposal that was also present at past Air Forums is that the Performance Scheme incentivises the introduction of new technologies, namely remote services: if the Performance Scheme would incentivise operational expenditure (OPEX) over CAPEX this could speed up the introduction of shared data centres, which are a promising technology to lower system costs.

Finally, it was underlined that integrating the (post-Brexit) UK and Turkey in the future Scheme is essential as both countries represent a large share of traffic going in and out of the EU.

The Charging Scheme: How to Incentivise Efficiency?

The targets set under the Performance Scheme are the basis for the charges determined by the [Charging Scheme](#). The Charging Scheme aims at providing a transparent regime of charging for ATM en-route and terminal services. It was discussed how to change some of the features of the Scheme. For instance, the current traffic risk sharing and cost sharing arrangements could be modified. Currently, the cost sharing provides an incentive for ANSPs as they are entitled to retain any surpluses if their costs fall below what was stated at the beginning of the RP. Conversely, if their costs turn out to be higher, the additional costs are borne by the ANSP. Certain costs are, however, excluded from this arrangement, such as costs for pension schemes



and costs incurred by Eurocontrol; furthermore, there is an inflation adjustment.

Another element was the future of traffic risk allocation. Traffic risk refers to the risk of actual traffic volumes being below or above the estimated figures at the beginning of the RP. There was the suggestion to exclude this aspect from the Performance Scheme. The source of traffic data may be an important element for this: it was mentioned that without the capacity to collect and create their own figures about traffic development, regulators depend on ANSPs to provide such information. ANSPs become intentionally pessimistic about future demand because this can manipulate the price cap in their favour. This and other forms of “regulatory gaming” or cheating need to be addressed in a consistent way in the upcoming RP. It was also discussed whether ultimately ANSPs should bear the entire traffic risk: they would then be able to earn more if there is more demand provided they can offer the necessary capacity.

The discussion showed that the Performance Scheme is already very complex, and changing it may complicate it even further. This complexity has a cost: it was presented that currently the regulatory costs are between 5% and 35% of the ANSPs’ cost base.

The incentives within the Scheme may also not be properly aligned. It was discussed that, for instance, delay targets may impact capacity: the incentive to lower average delay may dissuade ANSPs from accepting further traffic in their territory. This way it would incentivise less cooperative behaviour to the detriment of system-wide effectiveness.

The panel also discussed how the industry could become more efficient in the long run. The idea was discussed to further unbundle ANSPs and make competitive tendering obligatory for all ancillary services.

Setting the Targets for RP3: How Can we Make the Process Simpler?

Finally, discussions addressed some points related to procedural aspects. The process of defining targets is complex. Generally speaking, the Commission defines targets in the performance areas advised by the [Performance Review Body](#) (PRB): the PRB uses its expert knowledge to define targets. These targets are then translated into national performance plans which then are submitted to

the Commission for approval by the [Single European Sky committee](#), which is part of the comitology procedure.

One suggestion was to look at whether all performance areas were equally important. There were also proposals on simplifying the system by essentially excluding all areas that have been successfully opened to the market.

The targets that are set are based on data mainly provided by Eurocontrol that is then translated into concrete figures allowing for the requirement to lower delays to a specific figure. For many regions, that figure is zero and there is always discussion as to what number is achievable and what number provides enough incentives. This approach could also be changed, for instance to defining, across the board, an aim for average delay per flight. Data and indicators are available yet it would need to be decided which aspects need to be tackled.

Another element in this discussion revolved around the question which actor in the SES system can be the one pushing for higher ambition. As it was stated in the other panels, performance targets are formulated based on different sources of data and with the involvement of various actors. At the end, however there is a need for somebody with adequate information that is pushing for more ambitious targets. In a way, airlines are the ones most directly affected and they should make their voice heard even more. Institutionally, it will be the European Commission but with an even stronger push coming from the PRB, which should grow in independence and expertise, in the future.

ANSPs remarked that a lot of ambition has already come from within ANSPs. There were many references to the improvements achieved, especially in the area of delays, over the past decades. In fact, ANSPs are already striving to become more efficient and have internalised the goals set by the Commission. Some ANSPs, however, criticised the lack of a clear strategy for the future of the sector as a whole: as was obvious during the discussion, there is a mix of goals on the one hand, and regulatory tools deployed, on the other. ANSPs need certainty as to whether the future ATM industry will be a heavily regulated sector, a fully liberalised sector with open competition, or a European centralised sector, possibly served by one European ANSP. These very different long-term visions need to be spelled out more clearly so the responsible managers can act accordingly.



A Regulatory Paradox in Aviation

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From the viewpoint of economics, in a monopoly or quasi-monopoly industry, service users can benefit from a price regulatory regime that, when successful, protects them from being over-charged. In other markets, regulation is inferior to the promotion of vigorous competition.

As is well known, this lesson is resisted in European aviation - indeed, it is turned on its head. Where competition is difficult or not possible and therefore price regulation could be beneficial - in airports - it is not provided in the EU. But where competition is possible and regulation is not needed or harmful - in ATC - competition is prevented and regulation exists on a comprehensive scale. The result is to leave the airport sector without effective regulation and the ATC sector without competition.

In the airport sector, there are many cities and regions with a single airport that has a considerable degree of dominance and market power, that is, scope for over-pricing. Unless airport competition increases, there is an argument for price regulation in those parts of the airport sector with monopoly airports. A standard price cap regime would seem a straightforward tool to use.

In the air traffic control sector with no underlying problem as there are dozens of EU companies providing air navigation services (albeit currently only within their own national boundaries) regulation is not needed; competition can readily be delivered.

Yet the EU Airport Charges Directive - a rather flimsy 'set of common principles' for price setting - falls a long way short of binding price regulation.

Meanwhile the Single European Sky, instead of imposing competition, offers a complex web of regulations that carve up of the ATC market into non-competing and purely artificial national monopolies.

In both sectors, passengers are denied the lower charges that competition would bring while monopolists retain

the 'quiet life' that Nobellist Sir John Hicks said was their ultimate goal.

Why should this be so? Many other sectors across the economies of the EU have had either regulation or competition, as appropriate, imposed on them to the benefit of consumers.

One way to look at the issue is to say that utility companies are intermediate producers: downstream firms use the infrastructure provided by an upstream service provider. But this means one party's income is another party's costs. In the absence of large or steady independent increases in demand, cost reductions for users involve income losses for producers. User costs can only be cut if provider revenues also fall.

This is difficult if not impossible to achieve when the infrastructure providers are government-owned and so possess great influence in the corridors of political power. The result is likely to be - as, unfortunately, under the current SES programme - an absence of competition and a weak regulatory regime composed of small regulatory offices that are rarely fully independent implementing a 'performance scheme' that does not impose binding cost controls.

In utility sectors where regulation or competition have been introduced - energy, telecommunications, other parts of transport - assets have more usually been privately owned and regulators have been more free to serve the consumer interest.

Recent meetings of the Florence Air Forum have discussed ATC and many contributors have judged the status quo to be short-sighted since the technological changes, already underway, could circumvent the current infrastructure and business models especially in combination with unmanned vehicles.

The European ATM Master plan has set out a number of goals including a reduction in unit costs of 50%, a tripling of airspace capacity and an improvement of 20% in flight efficiency. Progress has been and is likely to remain marginal without turning EU aviation regulation 'the right way up', with effective regulation for dominant airports and competition (tendering) in ATC.



Further Readings

[Florence School of Regulation Transport Area, 2017, 9th Florence Air Forum Summary of presentations](#)

The Performance Scheme is the European Commission's most important tool to tackle the inefficiencies of European Air Traffic Management (ATM). The Single European Sky (SES) is still in gridlock, yet the need to improve performance is recognized by all Member States. The second Reference Period (RP) (2015-2019) is drawing to a close and, given the complexities of setting up the performance targets, preparations for RP3 have already begun. The 9th Florence Air Forum discussed the most relevant aspects of the Performance Scheme including how it could be developed further.

Representatives of the European Commission, major stakeholders as well as leading academics engaged in the discussions which addressed four central questions:

- Principles of economic regulation: what can we learn from the theory? What can we learn from other sectors?
- The SES Performance Scheme: can it be improved?
- The Charging Scheme: how to incentivize efficiency?
- Setting the targets for RP3: how can we make the process simpler?

[DG MOVE, 2017, Commission hearing on the preparation for RP3 – Report](#)

This report summarises an [open hearing](#) that was held by the Commission on 14th December 2016 to hear the views of stakeholders across the aviation industry. The hearing built on the outcome of the stakeholder discussion on the Performance Review Body (PRB) White Paper that took place in Cologne in November 2016 and provided stakeholders with a forum to provide forward-looking, constructive ideas for RP3. This paper summarises the discussions at the RP3 hearing. The discussion focussed on a keynote address from the Commission and two panel sessions to gather stakeholder views on the performance policy for RP3 and the second on the detail relating to measuring performance.

[Performance Review Body of the Single European Sky, 2016, PRB Annual Monitoring Report 2015](#)

This Annual Monitoring Report 2015 is published by the Performance Review Body (PRB) of the Single European Sky (SES). It covers the first year of the second Reference Period (RP2) which runs for five years from 2015 to 2019. The report provides a summary of European Air Navigation Services performance achieved for 2015 in the four Key Performance Areas of safety, environment, capacity and cost-efficiency. It provides the opinion of the PRB on progress and makes recommendations where necessary to the European Commission. It refers to, and uses data from, the States subject to the provisions of the SES Performance Scheme and data supplied by Eurocontrol.

[Blondiau, T., Glazer, A., Proost, S., 2015, "Air Traffic Control Regulation with Union Bargaining". Available at SSRN: <https://ssrn.com/abstract=2655612> or <http://dx.doi.org/10.2139/ssrn.2655612>](#)

This paper studies the behaviour of the air traffic control (ATC) centres in the EU. It investigates the functioning of the European ATC sector with a union bargaining model. In this model, working conditions are the outcome of a bargaining game between the public air traffic control agency and the unions of air traffic controllers. It uses this framework to understand the behaviour of the ATC centres for wage formation, their reactions to a price-cap, adoption of new technologies, congestion pricing, effect of vertical disintegration, competition and the possible success of mergers between different national ATC centres. The theory is able to explain the slow progress in ATC performance in a unionized environment. The empirical analysis is based on actual ATC performance data.

[Eurocontrol, 2017, Performance Review Commission \(PRC\) quarterly online, issue Jan-Jun 2017](#)

The PRU is responsible for monitoring and reviewing the performance of the Pan-European Air Navigation Service (ANS) system across a number of key performance areas. As part of the EUROCONTROL Agency, the PRU supports the independent Performance Review Commission (PRC) in running the EUROCONTROL Performance Review System and executing the associated PRC work programme with the appropriate level of independence. The PRU also provides support to the European Commission (EC) on the SES Performance and Charging Schemes.

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FSR Transport

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The FSR-Transport Area's main activities are the European Transport Regulation Forums, which address policy and regulatory topics in different transport sectors. They bring relevant stakeholders together to analyse and reflect upon the latest developments and important regulatory issues in the European transport sector. These Forums inspire the comments gathered in this European Transport Regulation Observer.

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