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## **FASTI Potential Target Key Performance Areas (KPA's) and Key Performance Indicators (KPIs)**

Prepared by

Chris Brain Programme Manager

### **1. Introduction and Purpose**

Since the creation of the FASTI programme the implementation strategy has been based on a dual approach - notably bottom up – “filling the gaps” and top down “performance driven” as agreed by the PSG with its endorsement of the Executive PMP at PSG2. Both approaches are aimed at achieving the successful implementation of FASTI across Europe while maximizing the benefits derived from the scope of the programme. The implementation strategy is primarily targeted at FASTI key stakeholders - ANSPs, Supply Industry and Regulators.

During a recent meeting with a stakeholder ANSP, it was stated that although the provider planned to implement FASTI capability during the next two years, expectations regarding tangible operational improvements to be achieved were uncertain. This paper has been created to meet the need of this provider and others who share this concern in order to bring a sharper focus to the expected benefits of the programme. It describes at high level, potential KPA's and target KPIs considered as appropriate for the programme which are seen as being essential to support the performance driven approach.

### **2. Scope**

The KPA's in this document have been devised by the programme team based on the performance based approach adopted by ICAO and the SESAR Performance Framework as described in “SESAR Definition Deliverable 2 – Air Transport Network the Performance Framework” published December 2006. Within this SESAR work FASTI has been evaluated and declared a selected solution for the short term improvements baseline. The SESAR document has divided KPA's into eleven categories. For the purpose of this paper a more simplified approach has been taken and only five categories adopted for consideration by the PSG as follows:

- Safety
- Capacity
- Cost effectiveness
- Efficiency
- Environmental sustainability

In addition, the FASTI team has created a category termed Harmonization of Operational Procedures and Practices, reflecting the potential of the FASTI tools to act as an enabler to capacity enhancement and operational interoperability.

### 3. **KPA Categories and Definitions<sup>1</sup>**

FASTI KPA's are aimed principally at ANSP's and Regulators with the Supply Industry playing an enabling role. They have been developed along the lines of a menu and **may be selected** according to the ATM environment, ANSP business strategy and priorities from which tangible operational improvements can be derived. Further guidance on the area of application is expected at the end of the current phase of the programme following the receipt of results from various validation activities.

The FASTI KPA's may be defined as follows:

- **Safety**

The risk, prevention, occurrence and mitigation of air traffic accidents

- **Capacity**

The ability of the system to cope with air traffic demand. Airspace capacity covers any individual or aggregated volume of airspace with European airspace. It relates to the throughput of that volume per unit of time for a given safety level.

Network capacity is concerned with the overall network throughput taking into account the network effect of the airspace and airport capacity in function of traffic demand patterns.

- **Cost Effectiveness**

Cost of ATM gate to gate in relation to the volume of traffic managed

- **Efficiency**

The actual flown 4D trajectories of aircraft in relationship to their shared business trajectory (plan for optimum flight performance assuming no other traffic).

- **Environmental Sustainability**

Aims are to reduce adverse environmental impacts (average per flight) and to optimise operations accordingly. (For FASTI the scope is atmospheric impacts covering gaseous emissions and possibly secondary effects such as contrail triggered cirrus cloud).

- **Harmonization of Operational Procedures and Practices<sup>2</sup>**

Aims to act an enabler for capacity enhancement

### 4. **FASTI Target KPI's**

KPIs will help FASTI in achieving its goal of making change in en-route ATC through the definition and measurement of progress. The key indicators should be agreed upon by the PSG and should be indicators which can be measured and that will reflect success factors. KPI's are usually considered against the medium term hence the need to establish KPI's now and to include them in ongoing pre-operational validation and implementation.

Potential KPI's have been defined in Table 1 and are based on results from past validation activities conducted inside and outside the Eurocontrol Agency, Pioneer ANSP operational experience and subject matter expert opinion. They do not constitute an exhaustive list but may be considered as a starting point for PSG discussion. This paper does not intend to substantiate each KPI in detail preferring to permit PSG members to contribute their input to this process and its refinement.

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<sup>1</sup> "SESAR Definition Deliverable 2 – Air Transport Network the Performance Framework" published December 2006

<sup>2</sup> Devised by FASTI team

Potential KPA's	Potential Target KPI's
<b>Capacity</b>	<ul style="list-style-type: none"> <li>• Increase network capacity by 15% at full scope implementation across the network</li> <li>• Increase upper airspace sector capacity by up to 15%</li> <li>• Increase lower airspace sector capacity by up to 10%</li> </ul>
<b>Safety</b>	<ul style="list-style-type: none"> <li>• Reduce the number of airproxs and incidents by 50% where the cause is due to lack of controller <b>vigilance, perception</b> and <b>aircrew error</b> through use of MTCD, MONA enhancing conformance monitoring and SYSCO improving integrity of communication during coordination</li> <li>• Increase safety as a direct function of controller workload reduction per aircraft, where capacity targets are not appropriate</li> </ul>
<b>Cost Effectiveness</b>	<ul style="list-style-type: none"> <li>• Reduce number of sectors by 10% either by an absolute reduction or leave combined for longer during the day</li> <li>• Reduce number of controller hours by up to 5% per year per ACC through increased productivity, single person operation, multi sector use of MTCD</li> <li>• Reduce implementation cost of new systems by 10% - e.g. use best practice for concept of operations, transition planning and training, common requirements, reduce fragmentation</li> </ul>
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>• Reduce flying time by up to 5% per flight per ACC through better planning and coordination, enabling optimum routing and minimizing tactical interventions, more direct preferred routing non constrained by tactical constrains. Fuel savings average of 62 litres per minute per aircraft-\$30. (source IATA 14/2/07)</li> </ul>
<b>Environmental Sustainability</b>	<ul style="list-style-type: none"> <li>• Reduce flying time by up to 5% per flight per ACC through better planning, enabling optimum routing and minimising tactical interventions. Reducing CO2 emissions by 160kg per aircraft (source IATA 14/2/07)</li> </ul>
<b>Harmonization of Procedures and Practices</b>	<ul style="list-style-type: none"> <li>• Remove up to 20% of ATC constraints within an ACC</li> <li>• Reduce LOA longitudinal separation minima by 50% at all levels between adjacent ACC's</li> <li>• Reduce level capping by up to 50% within an ACC</li> </ul>

**Table 1 FASTI Potential KPA's and KPI's**

## **5. Conclusion and Recommendation**

This paper is has been written according to the philosophy of “starting implementation with the end in mind”. It is a starting point to permit PSG discussion on this topic. However it is hoped that an agreement can be reached by Q2 2007 in order for FASTI to be one of the first EATM programmes to establish this performance based approach to implementation. There is a need for KPI's to be used in the short term, to support forthcoming validation activities associated with Pioneer Support, Operational Concept refinement and scoping System Supported Coordination (SYSCO) aspects of the programme. The notion of “you cannot change what you cannot measure” will be a feature of this work with targets being essential in this case.

The PSG is invited to review the paper and to determine whether the content is relevant, sufficiently comprehensive, and to provide input to substantiating and refining each KPI. This work will make a significant contribution to meeting the needs of the programme's aims and objectives and ultimately the needs of the airspace users.