

# **Commercial Space Transportation and Air Traffic Insertion - SESAR Requirements and the European Perspective**

## **- Area of interest: NAS integration -**

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Commercial Space Transportation becomes an international business and requires landing opportunities all over the world. Hence the integration of space vehicles in other airspace than the US NAS is an important topic to be considered. The Single European Sky ATM Research Programme (SESAR) is preparing the implementation of a new ATM system in Europe. The requirements are defined by the concept of the shared Business Trajectory and System Wide Information Management (SWIM).

Space vehicle operations are associated with the requested need for submitting an Mishap Investigation Plan (MIP), containing responding and reporting procedures referring to possible reentry or launch incidents or accidents. This leads to the submission of an Emergency Response Plan (ERP), addressing information procedures about a planned Reusable Launch Vehicle (RLV) mission of the airspace alerting and emergency services in the areas of:

- Emergency Detection
  - Information relay between the Commercial Space Transportation (CST ) vehicle operator and the Traffic Flow Management (TFM )
- Response Organization
  - Due to the fact that orbital CST missions may need to be aborted anywhere around the earth, a global alerting function has to include segregated foci of the involved response organizations, from international down to regional or even local reaction units.

This paper describes the integration of the above mentioned services in the Air Traffic Management (ATM) information exchange concept of SWIM. It proposes an implementation concept via the world wide use of Remote Tower Operations (RTO) for surveillance of safe landings at spaceports far away from the launch/start site.