

Integrated Airport Apron Safety Fleet Management

The enhancement of efficiency and safety on the apron is the core objective of the AAS project (Integrated Airport Apron Safety Fleet Management), co-funded by the EC – Directorate General Transport and Energy in the 7th Framework Programme. A decision support tool for real time assignment of staff, tasks and equipment is being developed. At the same time the technology used will enhance safety by geo-fencing of restricted areas, and by implementing access control to vehicles.

Further, it provides open interfaces towards existing airport operations systems, including A-SMGCS. This newsletter informs about the milestones reached in the first project year:

- Successful pilot-tests in Berlin and Oporto
- Market analysis
- Definition of Indicators
- Dissemination activities.

AAS | Successful pilot-tests in Berlin and Oporto

The need to improve safety on airport aprons results from a lack of up-to-date information for all Ground Support Equipment (GSE) performing a wide range of tasks, from passenger transport and baggage handling to refueling, cleaning and aircraft maintenance in the phase between landing and take-off. The absence of information on the actual position of these vehicles negatively affects both cost efficiency and safety. Accidents and incidents involving Ground Service Equipment (GSE) alone result in damages of \$4 billion a year.

Twelve European partners from Germany, Austria, Italy, Spain, Portugal and Finland are collaborating on the project AAS – Integrated Airport Apron Safety Fleet Management (coordinator TSB-FAV) to develop a system providing real-time resource allocation through positioning (GPS, EGNOS) and communication (GPRS, Wi-Fi) technologies. The increase in efficiency will coincide with an increase in safety, primarily through dynamic geo-fencing and innovative vehicle access control for all tasks performed.



The first test of the AAS system was presented to a group of experts consisting of airport and Ground Handling operators and airlines at Berlin-Tegel on the 6th of March 2010. Visitors had the chance to find out more about the AAS approach at the company headquarter of project partner GlobeGround Berlin.

Results from the showcase at Berlin-Tegel will influence the design of a respective test system at the second test site in Porto (Portugal). Demonstrations integrated into day-to-day operations at both airports over a period of 6 months will start on the 1st of May 2010.

AAS is one of the first projects within the 7th EU framework program. In a larger thematic context, AAS is part of the Single European Sky ATM Research program (SESAR), which aims at a series of new technologies, systems and standards towards total airport management within Europe, thus improving efficiency, safety, energy consumption and emissions.

AAS | Market analysis

The global Ground Handling (GH) market is determined by both the overall development of aviation, as well as a concentration of market factors.

Studies into the medium to long term development of aviation in general predict an average annual growth of 4 to 5%. Its otherwise rapid growth potential is adversely affected by the current economic crisis, however the market is expected to recover fully by 2010 / 2011. The total number of passengers is expected to grow from 3.1 billion in 1999 to 4.6 billion in 2020.

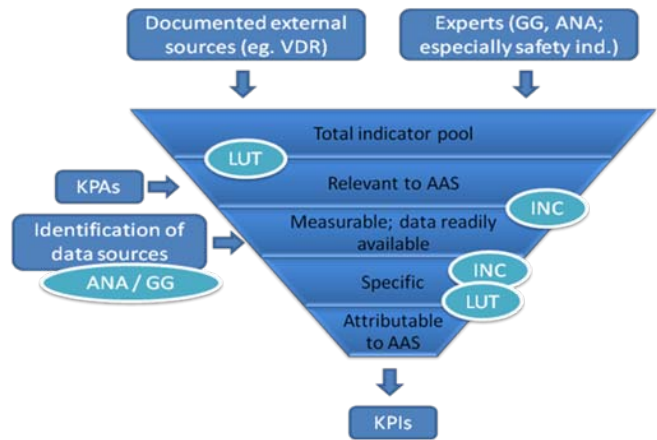
The Ground Handling market in particular is concentrated mainly on large and medium sized airports (Top 300-500). Applying a strategic planning technique called PESTEL analysing the environmental pressures on a team or an organisation (**P**olitical, **E**conomic, **S**ocial, **T**echnical, **E**nvironment [sic.] and **L**egislative) suggests, that the EU's liberalisation of GH activities (96/67/EC of 15 October 1996) has lead to a rapid growth in the market of independent Ground Handling, with a further 4% compound growth rate expected annually.

Based on the rate of adoption when RFID (Radio Frequency Identification) systems were introduced, the AAS system is expected to penetrate about 30% of the Ground Handling market by 2020. Projecting predicted growth rates from existing fleet management systems onto AAS indicates a potential adoption speed of 20,5% annually. The segment AAS is breaking into is expected to dramatically outperform growth in the average Ground Handling market.

While analyses show that competition is strong, that numerous companies are active in related fields and the average market share is shrinking, companies with only a background in general fleet management received lower approval ratings within the sector than companies specializing in GH. Competition is mainly expected from company consortia bundling core competencies, rather than individual enterprises.

Source: Siemens AG, 2010

AAS | Indicators



The Key Performance Indicator identification process

In an environment as complex as the airport apron it is difficult to attribute performance improvements to any one specific factor, the introduction of a new system such as AAS, for example. Therefore, **Key Performance Indicators (KPIs)** have been identified in a five-phase selection process with each process culminating in a 'selection-gate'. These each result in the elimination of unsuitable indicators from the process.

Those KPIs that were found to be directly related to the introduction of AAS and thus fit to measure its success were selected to validate three specific aspects:

- Function
- Acceptance
- Benefits

A set of specific indicators is used to measure feasibility (function and acceptance), as well Key Performance Indicators for the validation of benefits resulting from the introduction of AAS.

Acceptance is tested with the help of users participating in operational system tests, including drivers, dispatchers, as well as managers, who have previously undergone training on how to use the system and whose responses are measured on a seven point Lickert scale.

Feasibility indicators are designed to show what the proposed system does and whether or not it would be used, whereas benefit KPIs are selected to see how well AAS performs in terms of its unique, and thus incomparable benefit objectives. The system places a unique focus on perceived levels of situational awareness among Ground Handling staff, their perceived workload and safety relevant alarms, for example.

Whereas specific KPIs serve to measure key project objectives particular to AAS, these are complemented by generic indicators geared towards comparability. Generic indicators include factors such as safety, efficiency, cost effectiveness and environmental sustainability to allow benchmarking in relation to other projects.

AAS | Dissemination activities

2010 is a busy year for the dissemination of the AAS approach.

Interim results have been demonstrated at several high-profile events this year. These include:

- AAS was presented as an example of a successful FP7-project at a Workshop with the attendance of GSA and the EC representatives in Oberpfaffenhofen (Germany) on May the 6th 2010.

- Furthermore, the AAS system was presented to industry experts from both airport and Ground Handling operators as well as airlines during its first 6-months test run at Berlin-Tegel on the 6th of March 2010.

AAS is currently undergoing its second pilot-test at Porto (Portugal), starting on the 5th of July 2010.

Upcoming events include:

- Inter Airport China, international exhibition on the airport systems market, Beijing (China), 14.-16. September 2010.

- Airport Exchange, international air transport event, Istanbul (Turkey), 04.-06. October 2010.

- 12th Annual Ground Handling International Conference, Vienna (Austria), 29. November - 1. December 2010.

