



knowledge & development centre

Mainport Schiphol

# Speed and Route Advisor (SARA)



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## INNOVATION PLATFORM



### SARA OBJECTIVE

The objective of the SARA project is to develop a function for the air traffic control system which delivers advisories on speed and routing for inbound aircraft to Schiphol airport. By doing so Area Controllers can manage inbound aircraft to meet their planned arrival times which will make for stable and more predictable traffic streams. The SARA project is part of the arrival management strategy for Schiphol airport and is an important step towards the future European ATM System (The SESAR Target Concept). As such it is an important building block in the programme for the innovation of Schiphol airport operations.

*SESAR: Single European Sky ATM Research Programme. The European Commission programme for the future of ATM in Europe.*



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*Develop | Validate | Operate |*



Foto: Taco Anema, Amsterdam

## BACKGROUND

It has been widely recognized that the European Air Traffic Management system is operating close to its limits. This recognition is even stronger for the operation of Schiphol airport in which environmental constraints, but also controller workload constraints, limit the prospects of a sustainable Schiphol operation. For the Netherlands a development strategy has been set out to modernize the operation as part of the European SESAR development. In this development strategy the SESAR concept has been translated into a local strategy to develop stable and predictable traffic flows. Fixed arrival routes, increased approach altitudes, and continuous descent arrivals, have been set forth as steps of the arrival management strategy. This strategy aims at a sustainable Schiphol operation with reduced annoyance in the greater Schiphol area. In the current operation, the air traffic management system has to cope with a great variability in arrival times of inbound traffic (traffic bunching) and a very limited airspace to build traffic sequences to the runway. The Speed and Route Advisor has been defined to smooth inbound traffic streams as an enabler for fixed arrival routes and increased approach altitudes.

### PROJECT DESCRIPTION

The project develops both an operational concept and a prototype system which supports a stepwise approach to increasing arrival time accuracy. The operational concept covers working procedures to deliver speed- and route instructions for the descent towards Schiphol. As these instructions are most effective when given before the aircrafts initiate their descent towards the airport the multi-centre aspect of the concept is one of the challenging and innovative aspects of the project. The heart of the development will be the system function which provides the controller with the arrival planning and the speed route advisories which are needed for aircraft to meet their planned arrival times. The development of conflict probing is part of the SARA function.

## Towards the Single European Sky

### OBJECTIVE

The objective of the SARA project is to develop a system function which delivers advisories on speed and/or routing to (Upper) Area Controllers in order to achieve the planned arrival time(s) of the aircraft. The objective is to make the inbound traffic streams both more stable and more predictable.





# KDC Innovation Programme



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## ABOUT KDC

The Knowledge and Development Centre Schiphol (KDC) is a foundation in which the Dutch aviation sector partners KLM, Amsterdam Airport Schiphol and Air Traffic Control the Netherlands (LVNL) have organized their Research and Development work. The objective of the KDC is to secure the position of Mainport Schiphol by bringing together the necessary know-how and resources for the innovation of the air traffic management system.

Together with the Dutch Ministry of Transport (Directorate General Civil Aviation and Maritime Affairs, DGLM), the National Aerospace Laboratory (NLR) and the Royal Netherlands Meteorological Institute (KNMI), the KDC has defined the KDC Innovation Programme with the aim to ensure an environmentally sustainable Schiphol airport operation providing reliable capacity to the airlines.

