

PROJECT

## AUTOPACE

### AUTOMATION PACE

**Funding:** European (Horizon 2020)

**Duration:** Mar 2016 - Feb 2018

**Status:** Complete

**Total project cost:** €599,868

**EU contribution:** €599,868



**Call for proposal:** H2020-SESAR-2015-1

[CORDIS RCN : 200855](#)

#### Objectives:

Automation effects on arousal could be predicted differently depending on the Attentional Theory. The classical Theory (Kahneman, 1973) considers the level of arousal reliant only on psychological factors (stress, fatigue and emotions). Automation would only affect the task complexity by allocating part of the cognitive processing to the system. Alternative theories such as Malleable Attentional Resources Theory (MART) (Young and Stanton, 2002) assumes that automation would also affect the level of arousal and be dependent on controller's expectations: when the ATCo expects that the task is easy in the near future, she/he will reduce the arousal levels and get bored or sleepy (overconfidence on automation). On the contrary, fears of automation failing would increase stress and also the level of arousal causing disorientation, overacting or erratic behaviour.

Based on these theories, AUTOPACE proposes basic research on a Psychological Model to quantitatively predict how automation would impact on human performance based on cognitive resources modelling (demanded and available), tasks characteristics (automation), psychological factors modelling (fatigue, stress and emotions) and ATCo expectations (overconfidence vs fears of automation).

A catalogue of training strategies to support the controller being "in-the-loop" will be explored. For the classical Theory, the strategies only for keeping attention on the main task avoiding out-of-the-loop effect. For the MART the coach will be also for coping with stress. A reviewed Curricula and ATCo Selection will be initiated.

Expert Judgment from Psychologists, ATM Experts and Controllers Trainers supported by Literature Research will look at future competences and training strategies. The research on Psychological Modelling will be also sustained with Analytical Studies by using an existing prototype for demanded resources.

AUTOPACE points at research paths suggested in "Ergonomics in design" Issue (Hancock et al, April 2013).

#### Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

**Institute type:** Public institution

**Institute name:** European Commission

**Funding type:** Public (EU)

#### Lead Organisation:

**Centro De Referencia Investigacion Desarrollo E Innovacion Atm, A.i.e.**

**Address:**

Avda De Aragon 402 4 Edificio Allende  
N/A Madrid  
Spain

**EU Contribution:** €195,500

## Partner Organisations:

### Universidad De Granada

**Address:**

CUESTA DEL HOSPICIO SN  
18071 GRANADA  
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**Organisation Website:**

<http://www.ugr.es>

**EU Contribution:** €125,125

### Univerzitet U Beogradu - Saobracajni Fakultet

**Address:**

Vojvode Stepe 305  
11000 Belgrade  
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**EU Contribution:** €98,805

### Alma Mater Studiorum - Universita Di Bologna

**Address:**

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Italy

**Organisation Website:**

<http://www.unibo.it>

**EU Contribution:** €74,813

### Universidad Politécnica De Madrid

**Address:**

Avda. Ramiro de Maeztu, 3  
28040 MADRID  
Spain

**Organisation Website:**

<http://www.upm.es>

**EU Contribution:** €105,625

## Technologies:

Aircraft operations and safety  
Automated systems

**Development phase:** Research/Invention

**STRIA Roadmaps:** Cooperative, connected and automated transport

**Transport mode:** Road transport

**Transport sectors:** Passenger transport

**Transport policies:** Societal/Economic issues

**Geo-spatial type:** Other