



MALORCA

Machine Learning of Speech Recognition Models for Controller Assistance

MALORCA: Machine Learning meets Automatic Speech Recognition in ATC

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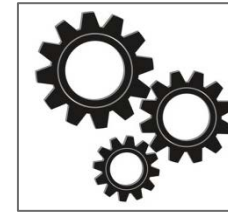
Madrid, 8th March 2018

Founding Members



Agenda

➤ Partners



MALORCA

➤ Motivation

➤ Application

➤ Learning mechanism and results

➤ Summary and next steps

Partners



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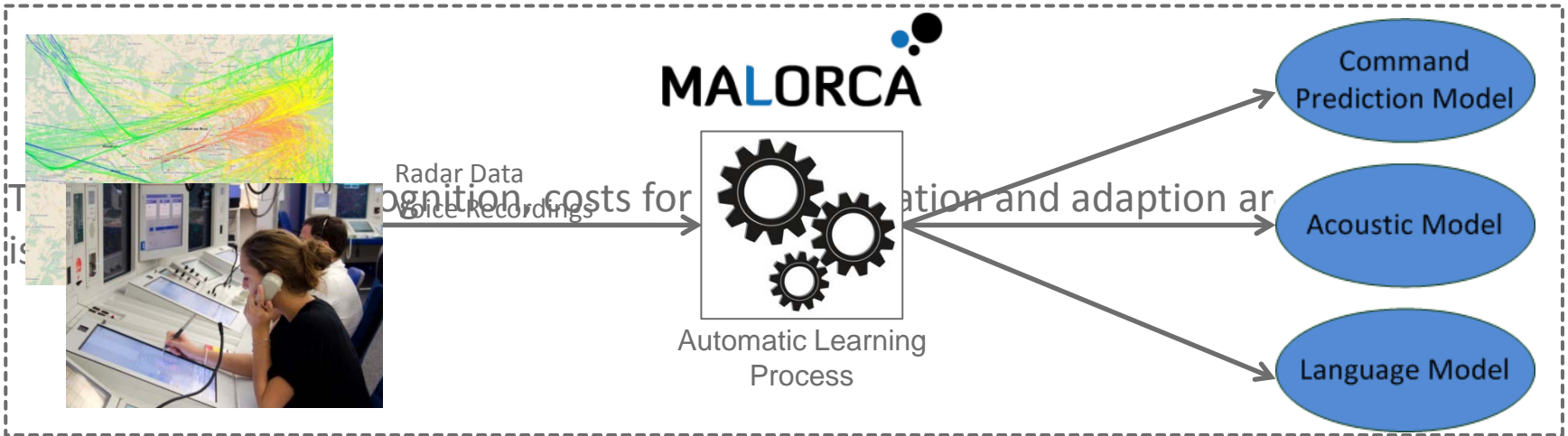
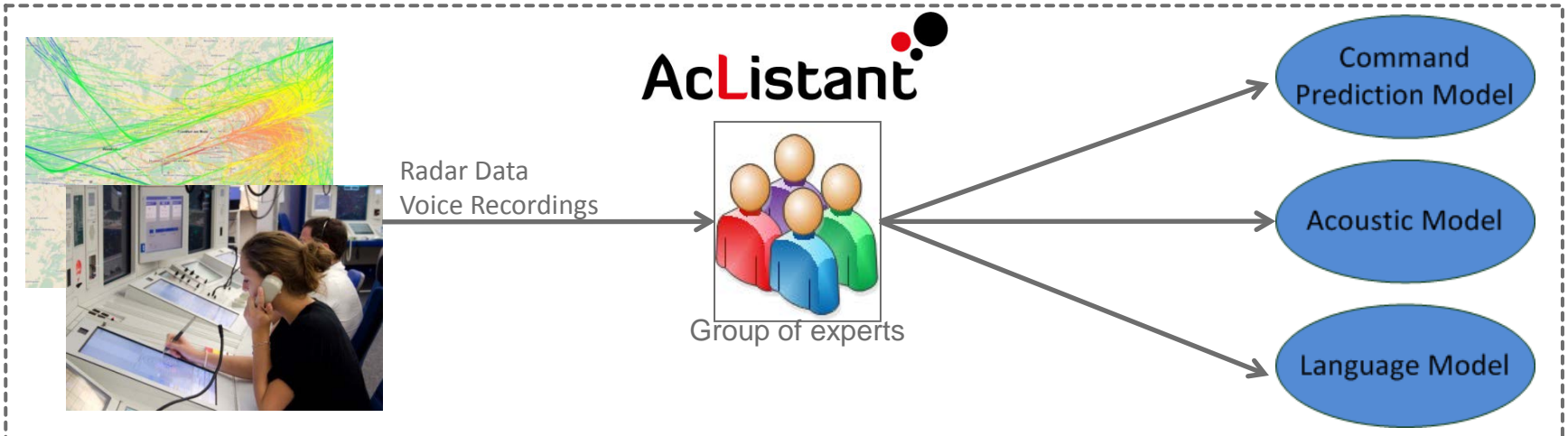


Air Navigation Services
of the Czech Republic

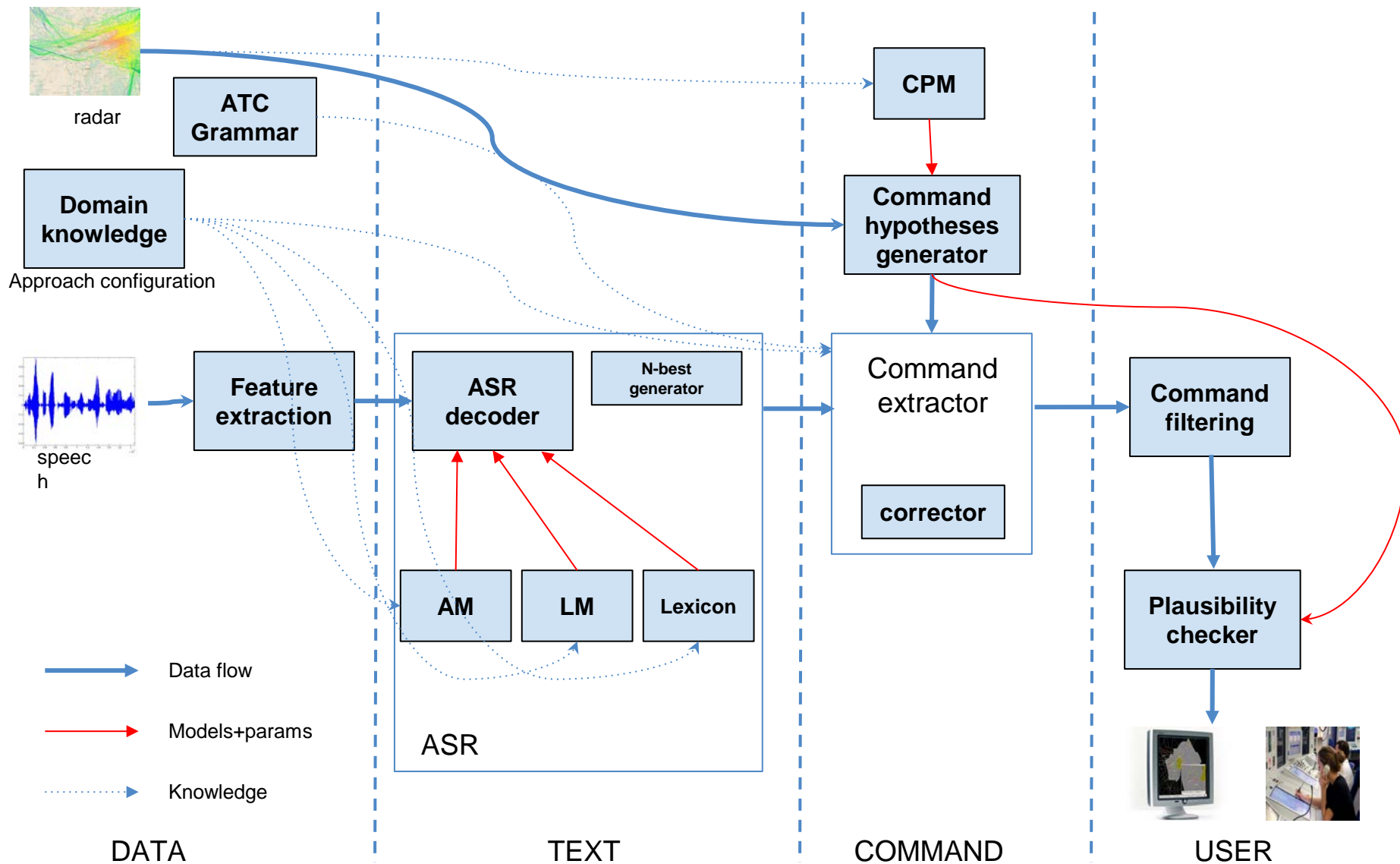
Covering the sky...



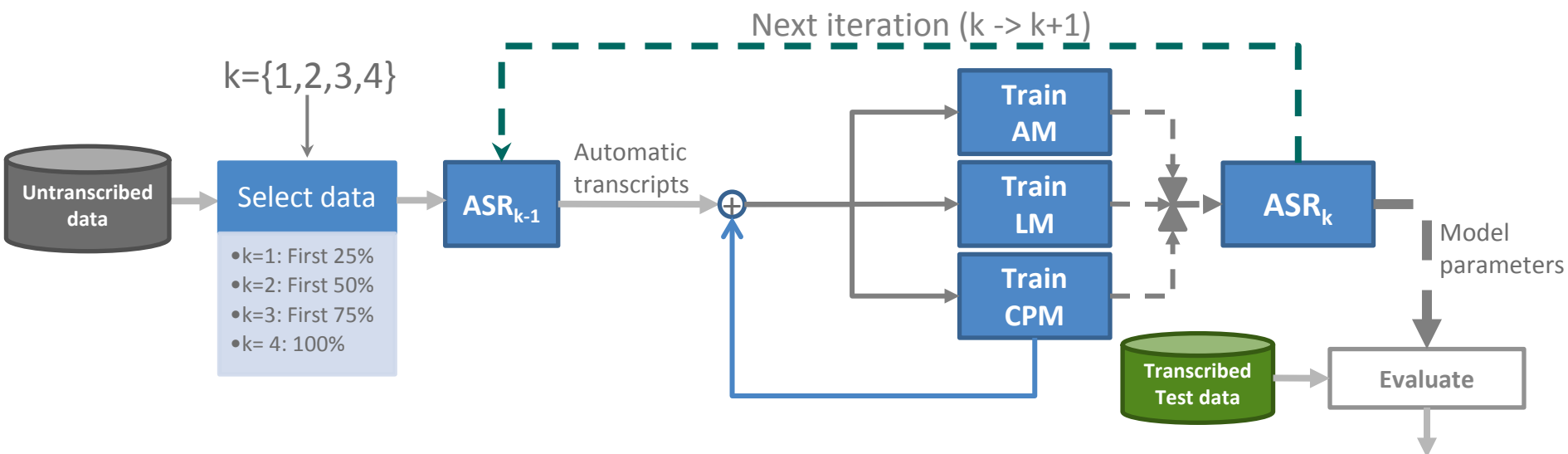
Motivation



AcListant (MALORCA) system



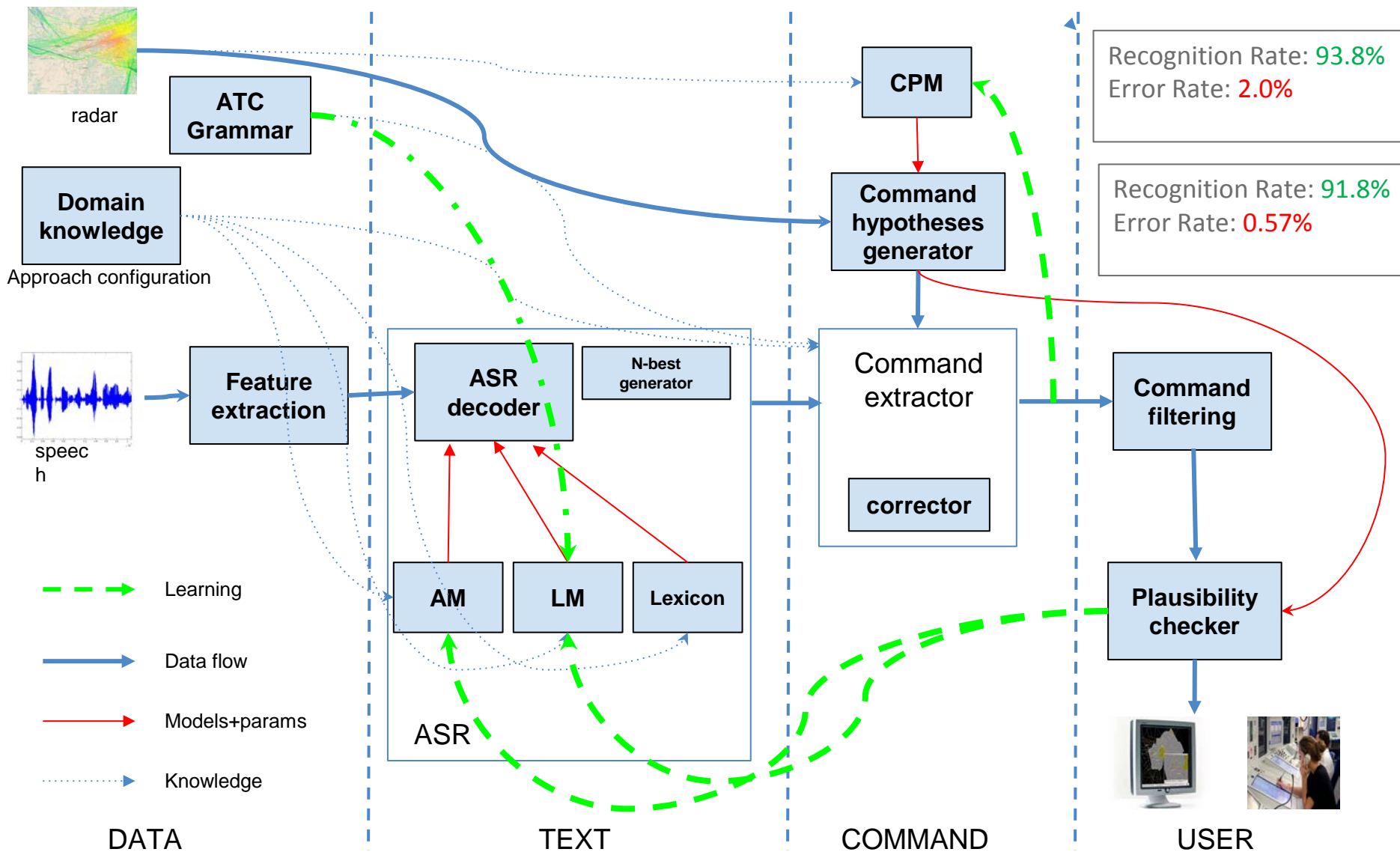
Automatic learning



- Data flow
- Store across iterations
- ▶ Model parameters flow

Base system, ASR_0 trained with out-of-domain data and adapted with transcribed in-domain data

MALORCA system - automatic learning



Summary MALORCA

- MALORCA developed a low cost mechanism to configure a speech recognizer to a specific airport
- Radar data improves unsupervised learning considerably
- Demonstration airports are Vienna and Prague
- An initial transcribed data set of 4 hours was used
- Recognition was increased by adding 21 hours of untranscribed data to 92% from 80%
- TRL 1 and 2 reached with the developed system

Next Steps

Improve **assistance based speech recognizer** and **optimize learning mechanisms** to automatically configure speech recognizer.

Test the behaviour of the learning mechanism according to:

- Model configurations for different
 - runway directions
 - different working positions,
 - ...
- Models for complex airports
- Models for non-nominal conditions

Next Steps



Develop learning mechanism to auto configure controller assistance systems



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Thank you very much for your attention!



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Founding Members

