PJ.10-W2 PROSA Sol.96 ASR Benefits of Speech Recognition in Air Traffic Control Management

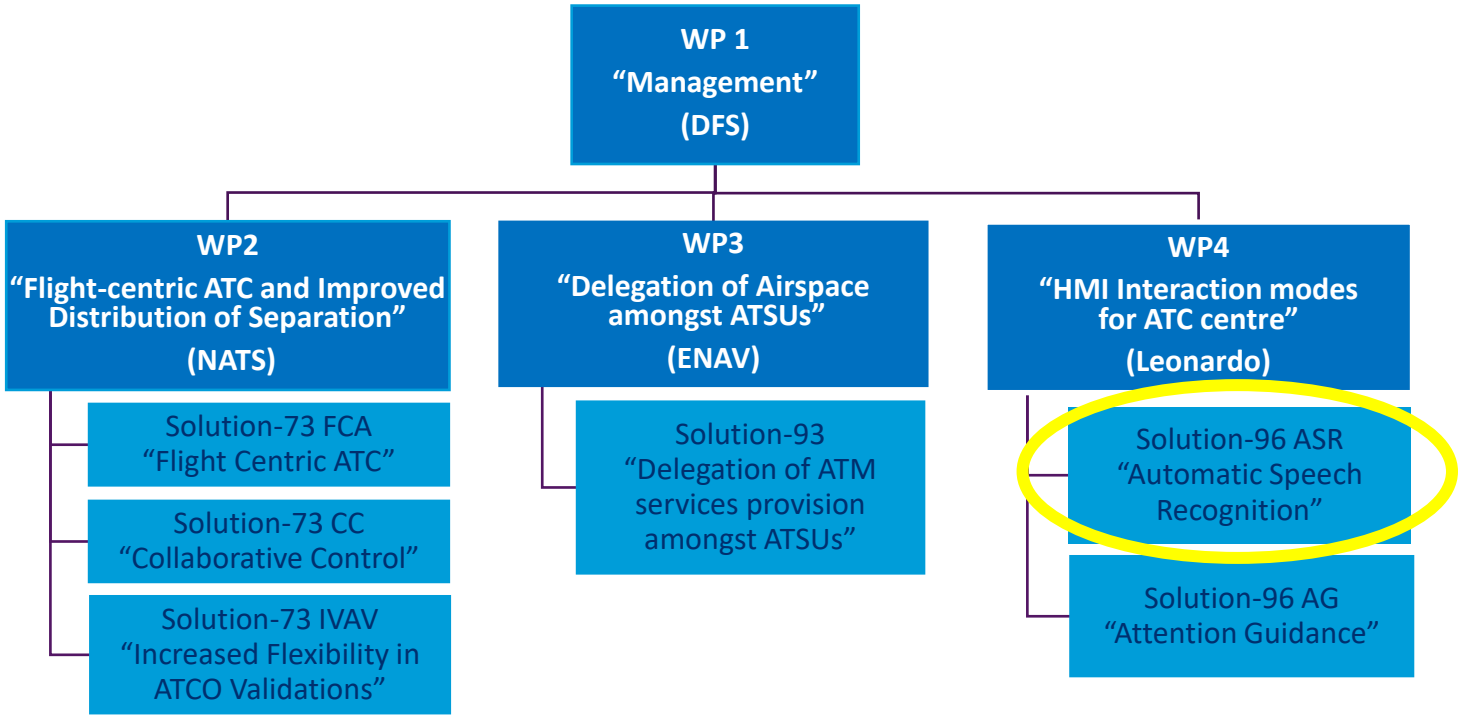
Sara Mansi Leonardo PJ.10-W2 Sol 96 Leader

Openday Sesar 2020 W2 PJ.10 Sol.96 ASR EXE-05, Oslo 26th September 2022

EUROPEAN PARTNERSHIP

Co-funded by the European Union

SESAR 2020: Project PJ.10-W2 PROSA
“Separation Management and Controller Tools”



Duration of 37 months
28 Partners from 19 Countries

Budget of 37 Mio EUR
3000 Person Months

This project has received funding from the SESAR Joint Undertaking under the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 874464

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Solution PJ.10-W2-96 ASR – Automatic Speech Recognition

LDO, DLR, NLR, ANS CR (B4), ACG/COOPANS, CL/COOPANS, ENAIRE, INDRA, SINTEF (NATMIG)

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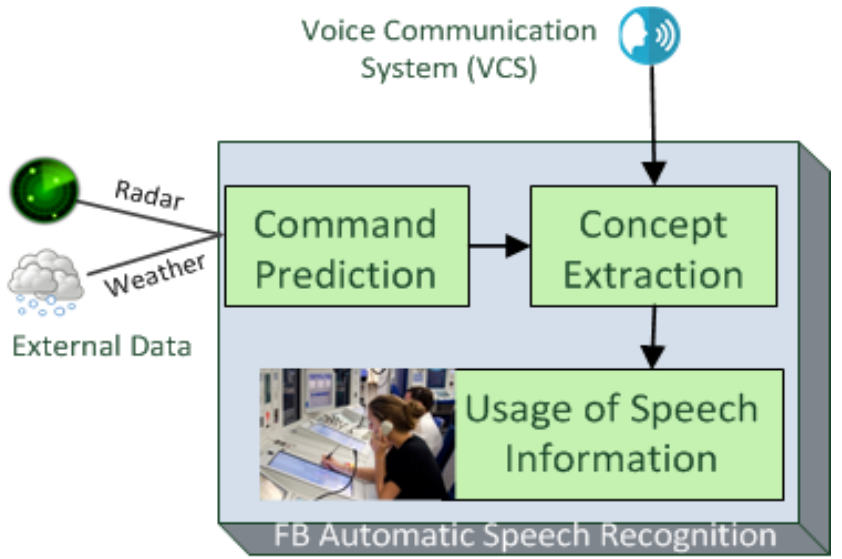
TRL2 | TRL4 | TRL6 | Target Release R12

30-04-23

Solution Scope:

As most input come from the ATCO-pilot spoken dialog, Automatic Speech Recognition is the appropriate technology to reduce ATCO's workload by directly prefilling command masks from the spoken commands instead of manually inputting them into the system. This requires integration of artificial intelligence (AI) and machine learning algorithms. Highlighting of targets, user-friendly and intuitive operation will increase controller productivity. The solution will also investigate how ASR may be used to enable faster and more predictable navigation in 3D visualizations of the airspace sectorisation when using dynamic airspace configuration (DAC).

The solution operates in a medium TMA and En-Route environment and ATCOs are the end users.



Supporting Solution Exercises and dates:

- EXE-PJ.10-96-ASR-TRL6-01 (RTS) LDO (Rome) 05-2022
- EXE-PJ.10-96-ASR-TRL6-02 (RTS) ACG (Brunswick) 10-2022
- EXE-PJ.10-96-ASR-TRL6-03 (RTS) ENAIRE (Madrid) 11-2021
- EXE-PJ.10-96-ASR-TRL6-05 (RTS) SINTEF (Oslo) 09-2022

Intended Benefits

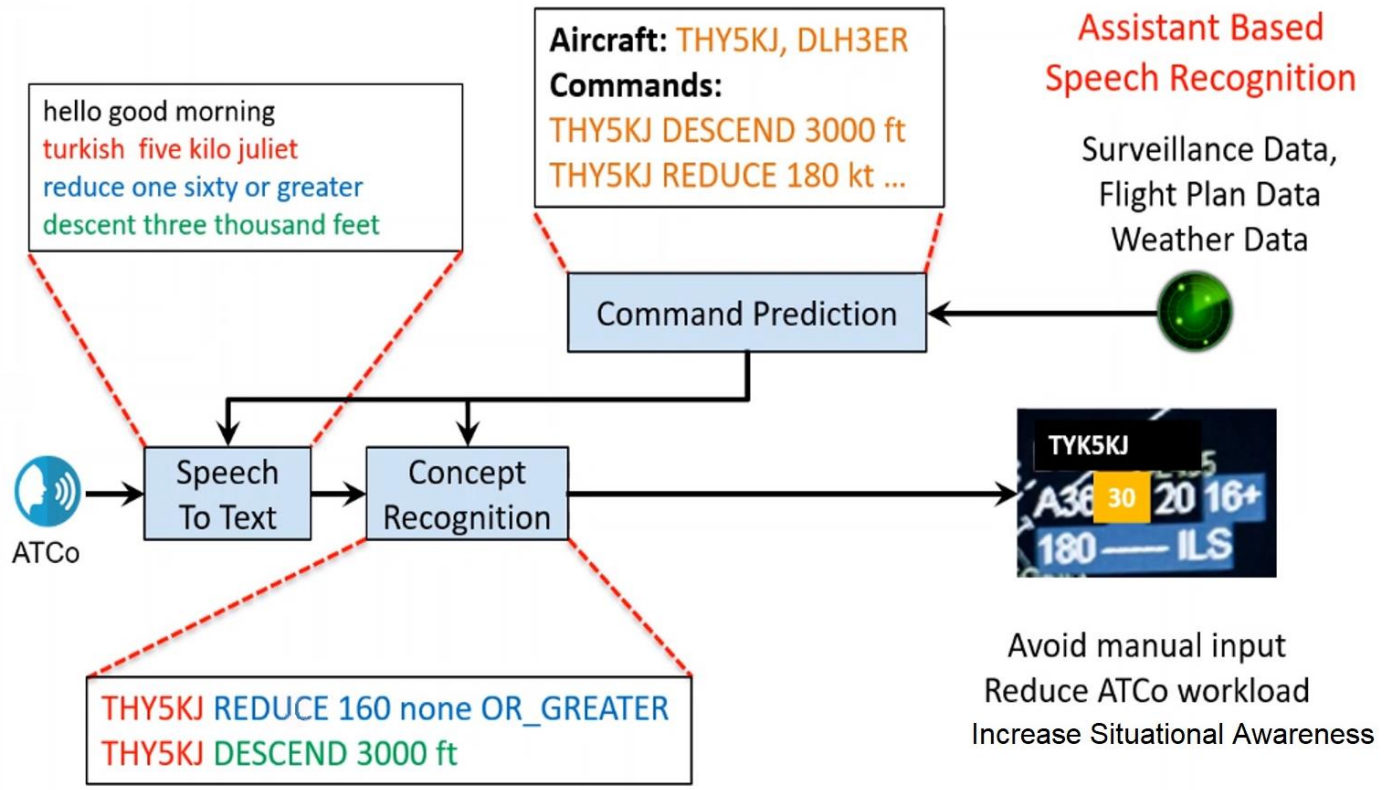
Increased controller productivity by highlighting targets and prefilling command masks directly from the ATCO-pilot spoken dialog. Enhance 3D navigation visualization when using dynamic air space configuration (DAC).

Safety, Fuel Efficiency, ATCO Productivity, Technology Cost, Human Performance, Security

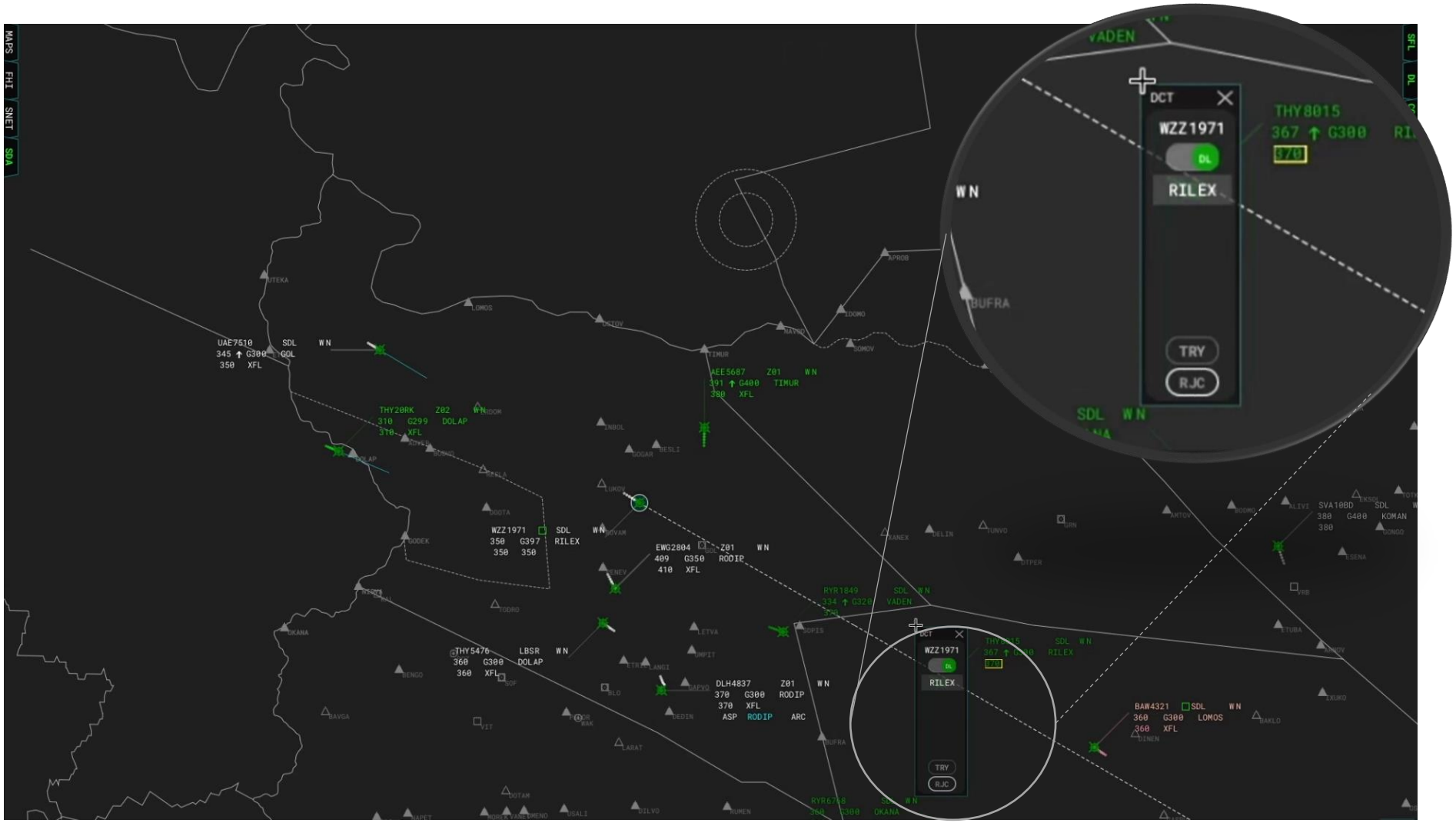
ASR in Sesar form Wave1 to Wave 2

Sesar Wave1 PJ.16.04: definition of the ontology

Sesar Wave2 Pj.10: Application of Speech Recognition integrated in operational environment

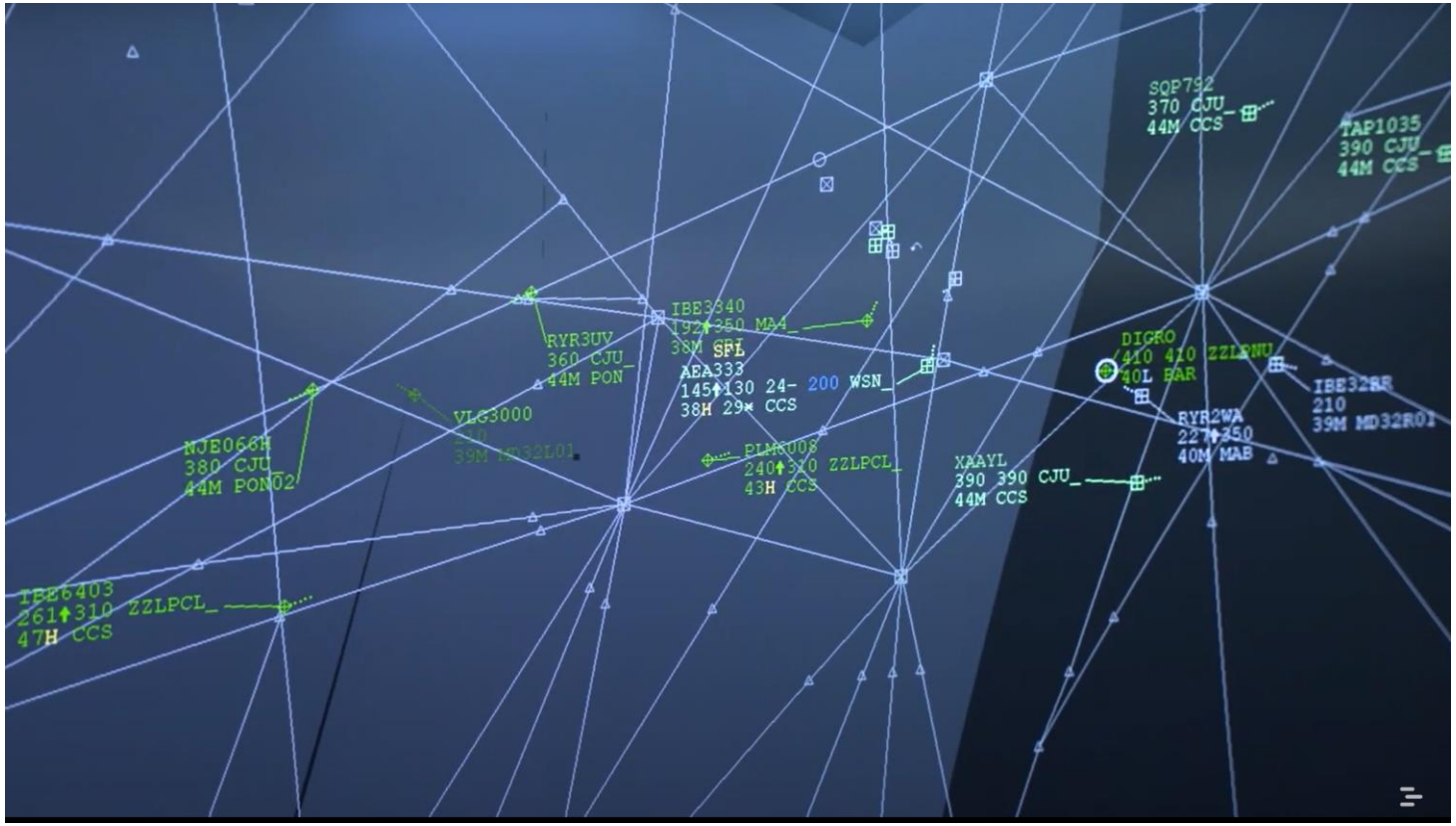


ASR integrated in the CWP: Prefill of command mask



The **command mask** is **automatically opened and filled-in** after the recognition of the spoken command.
If the flight is **CPDLC** equipped the command masked opened is the CPDLC one.

ASR integrated into the CWP: Highlight of flight



The **flight** is automatically **highlighted** and after the recognition of the callsign in **pilot or controller utterances**

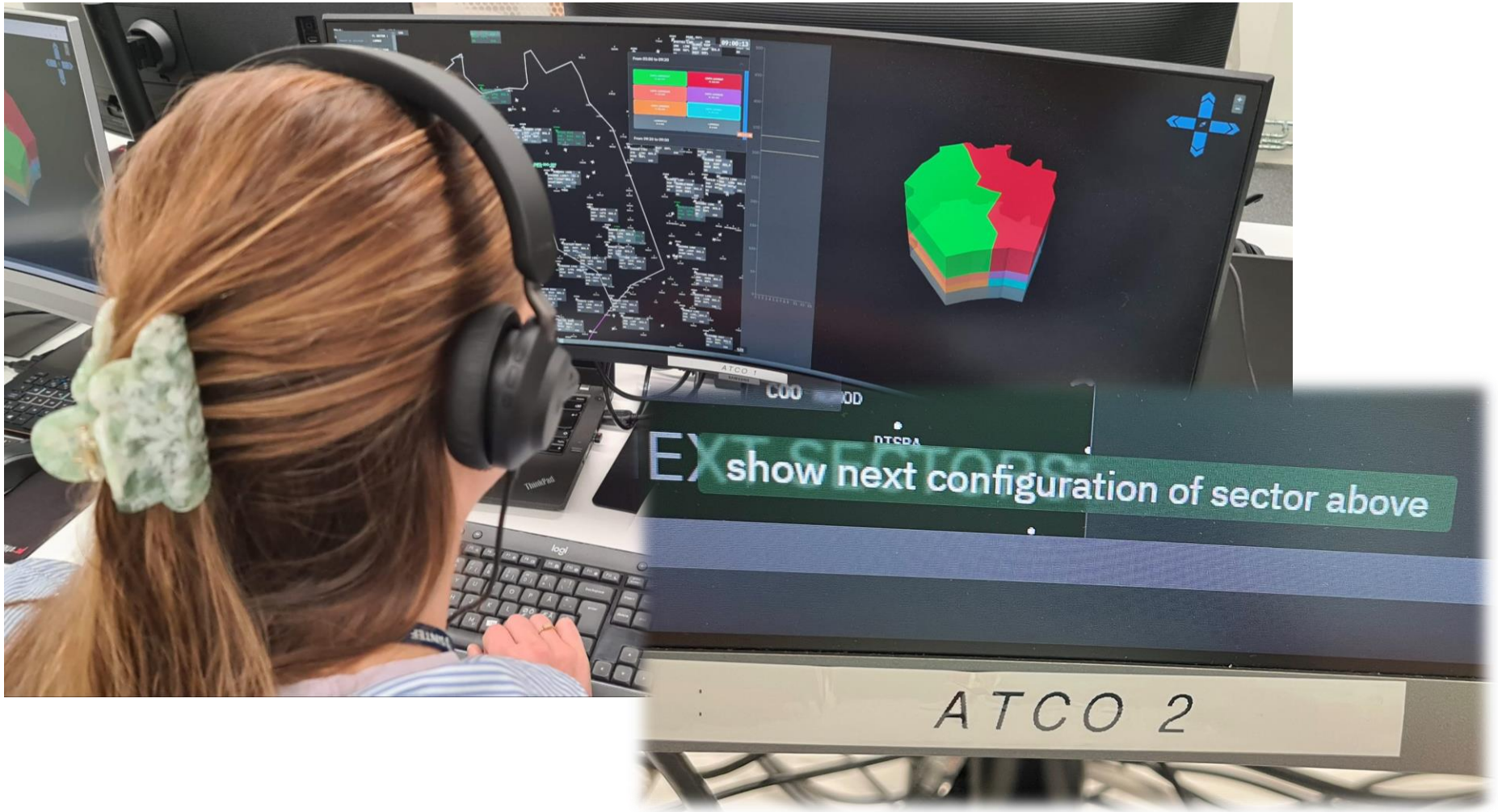
ASR integrated into the CWP: Prefill of the radar label by Continous Speech Recognition

Descend 7000 feet recognized

2500 feet per minute or greater recognized

The recognized **commands are prefilled** in the **radar label** in yellow and if they are **not rejected within 10 seconds** they turn to normal green colour.
The command are already shown during ATCO is still speaking.

ASR integrated in the CWP: Voice commands supporting situational awarness during sectorization changes



Voice commands for easy access to functionality supporting enhanced understanding of implications of sectorization changes when using dynamic airspace configuration (DAC)

THANK YOU FOR YOUR ATTENTION

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Thank you for your attention

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