

Project Overview

SignON and EASIER Final Event
29/ 11 /2023, Brussels



SIGNON



Objectives



Objective 1: Co-creation Workflow and Community

Objective 2: SignON Framework and Mobile Application

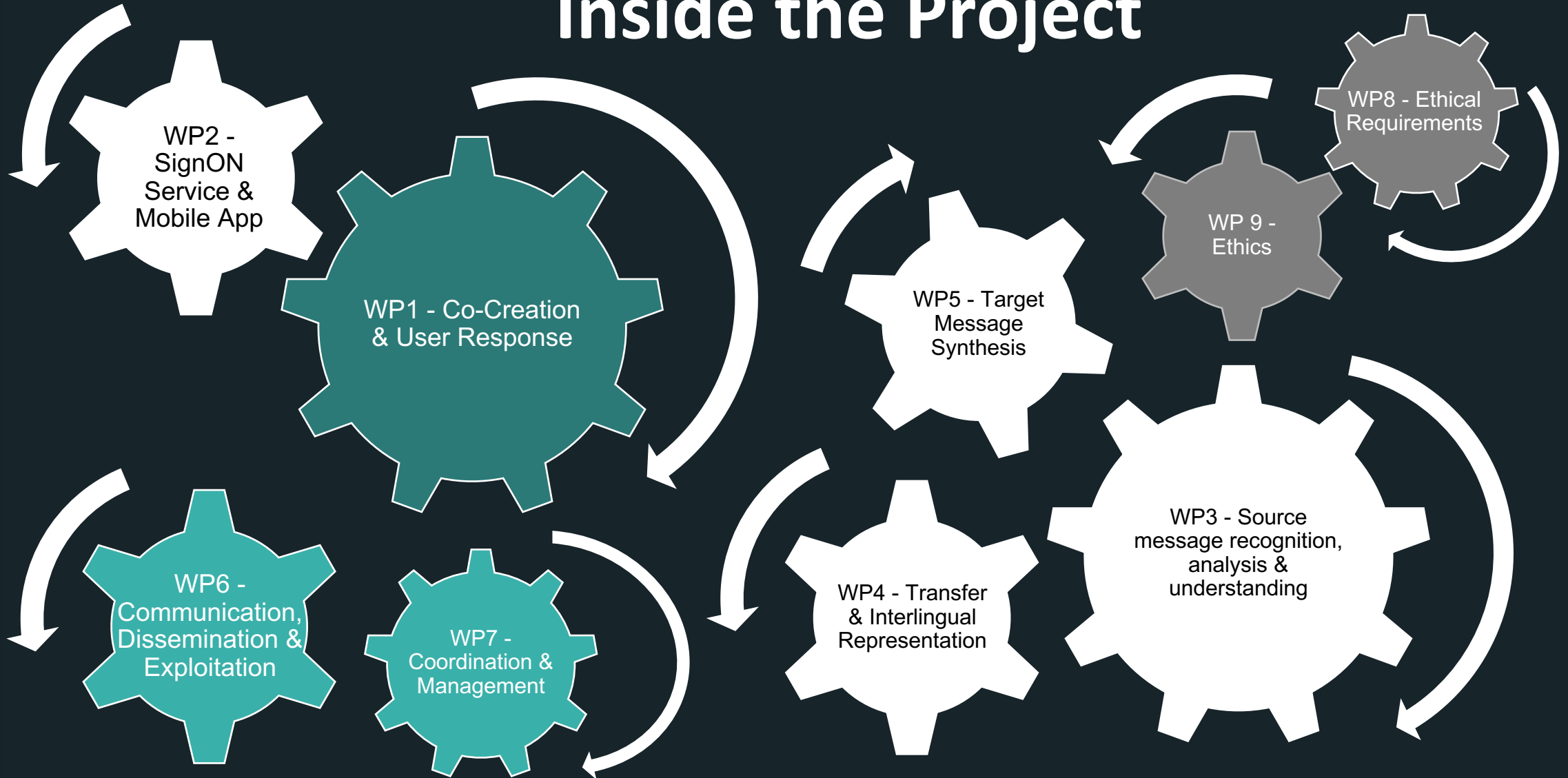
Objective 3: Automated Recognition and Understanding of Signed and Spoken/Verbal Language Input

Objective 4: Language Independent Meaning Representation

Objective 5: Sign, Speech and Text Synthesis

Objective 6: Wide-range of Supported Languages and Extensibility of the Framework

Inside the Project



SignON aims to reduce
the **communication gap**

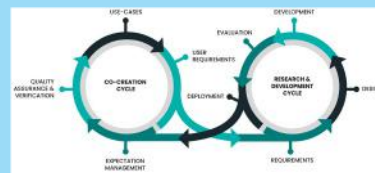


between **deaf,**
hard of hearing
and **hearing** individuals

through a user-centred and community-driven
research and development approach, involving
stakeholder-led user profiles from its inception.



This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement No 101017255



App & Framework

- Translation Application version 3.0.1
- Framework hosts all SignON services
- Recognition, Translation and Synthesis
- TRL 6

Code, models & data

- Stable as well as under-development
- Repositories with code and documentation
- A large set of models
- Datasets - collection, processing organisation

R&D

- all scientific dimensions relevant to the project
- view on sustainability and wide coverage
- collaboration between teams across universities and countries

Co-creation events

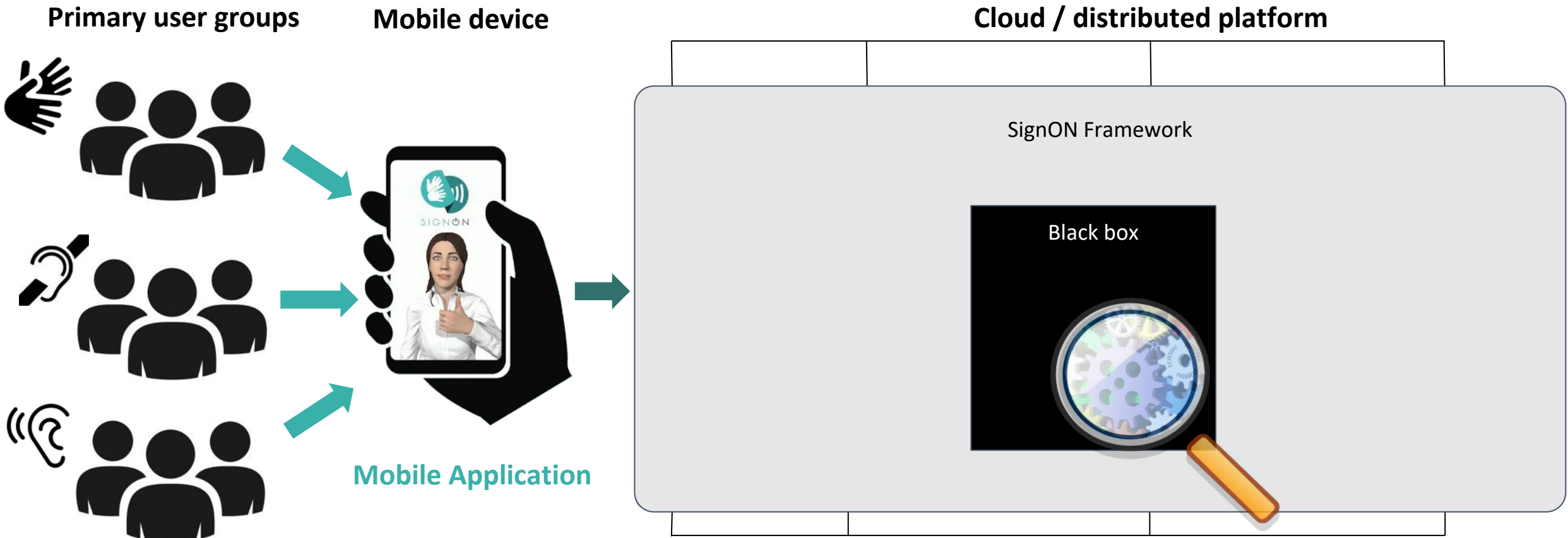
- Deaf communities are informed
- Large-scale events (e.g. WDD workshop) and small-scale events (e.g. internal validation)
- Feedback is woven in the R&D processes

Intra and inter co-...

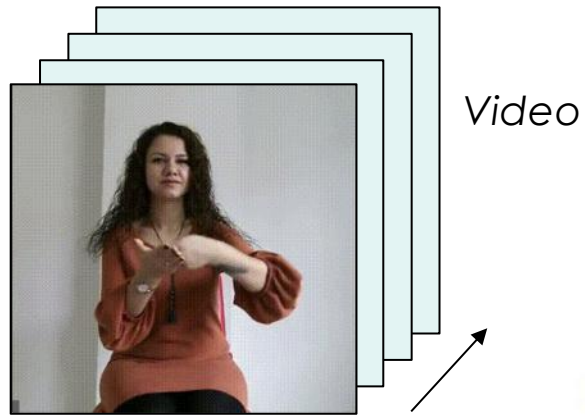
- Consortium level knowledge exchange
- EASIER & SignON, Deaf associations, other research institutions and orgs.
- Effective science communication and dissemination
- Conferences, workshops, seminars

Human-centric

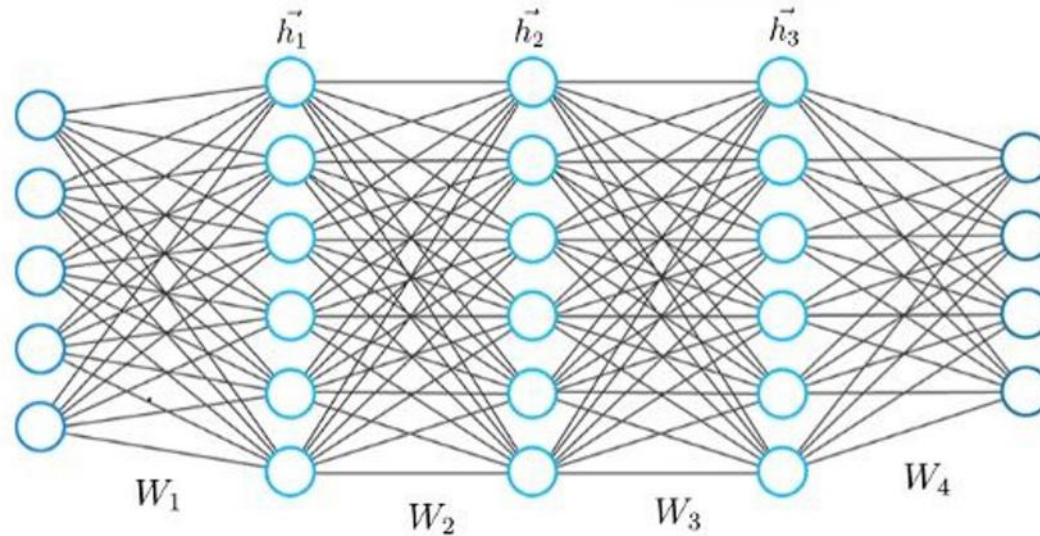
- Research ethics and guidelines
- Data management plans
- Communication and dissemination channels open for everyone



"A.I. has evolved immensely in the last decade and has reached unprecedented performance levels addressing an ever-growing set of topics. Exploiting the advances in sign language and speech recognition, automatic translation and synthesis of 3D virtual characters, SignON develops an all-in-one translation solution, accessible with the touch of a button."



\vec{x}



\vec{y}

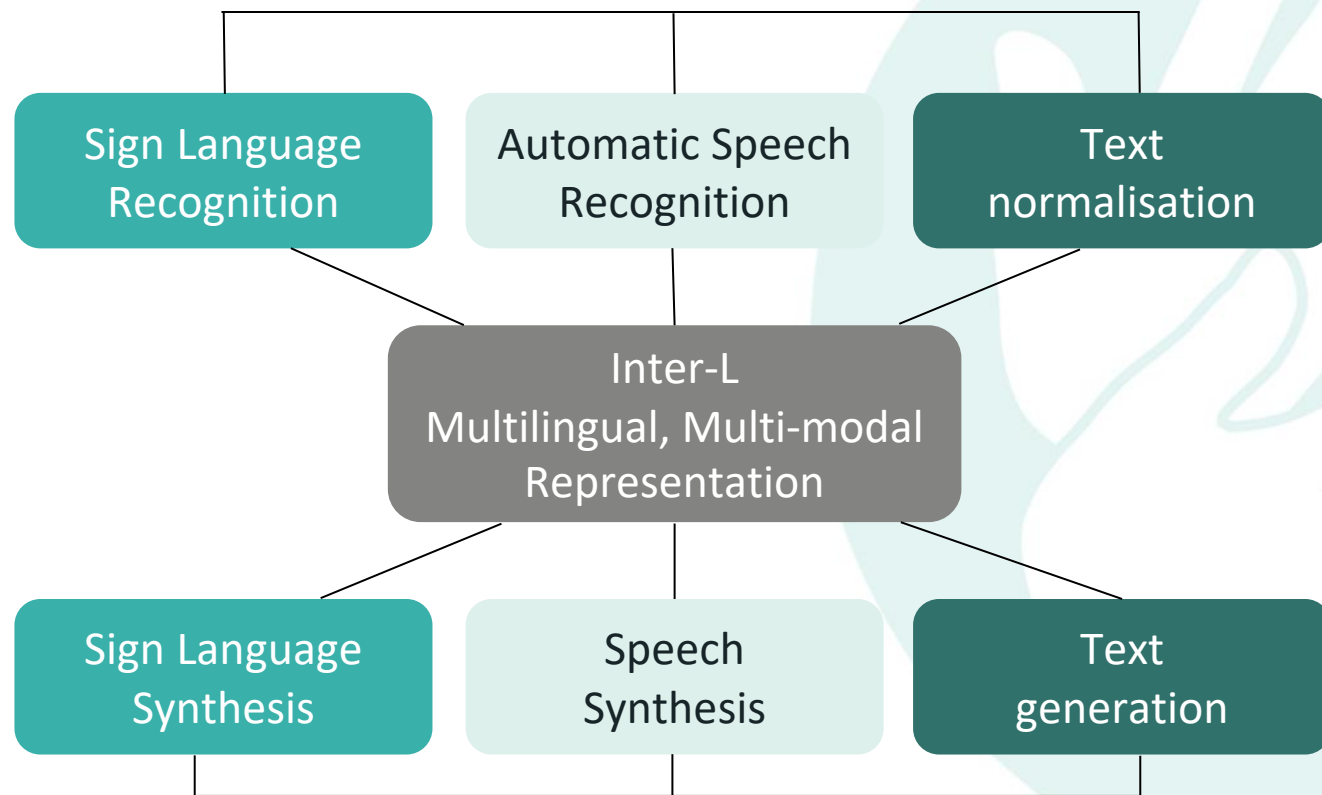


SL is recorded and input as videos

SL is produced in the form of a virtual signer, aka avatar



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The goal and the role of InterL

The interlingual approach deals with representation of different signed and spoken languages within one multilingual large language model.

5 sign languages:
NGT, VGT, LSE, ISL, BSL

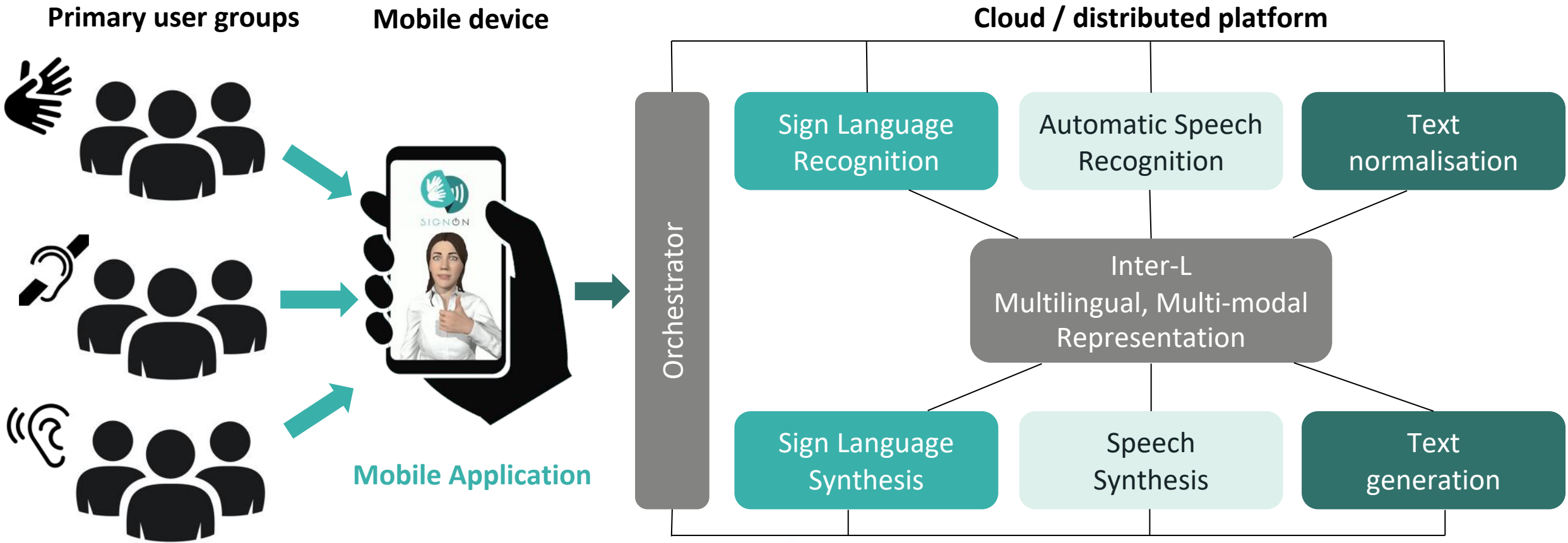
5 spoken languages in both spoken and written forms:
Dutch (Netherlands), Dutch (Belgium), English, Spanish, Gaelic

Inter-L
Multilingual, Multi-modal
Representation

Total: 15 languages/modalities

Total: $15 * 14 = 210$ language pair combinations

- In SignON InterL acts as a language bridge between all languages and modalities
 - Combines SOTA in DL and symbolic methods for optimal performance



SignON A.I. = distributed intelligence, following a divide and conquer approach

- *modularity and parallelisation*
- *reduced number of models*
- *less dependency on data*
- *we are not there yet...*



Current A.I. is data hungry.

Millions and billions of sentences are needed to train effective MT systems for spoken languages.

How much data do we have for SLs?

How good is this data?



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How much data do we have for SLs?
not enough

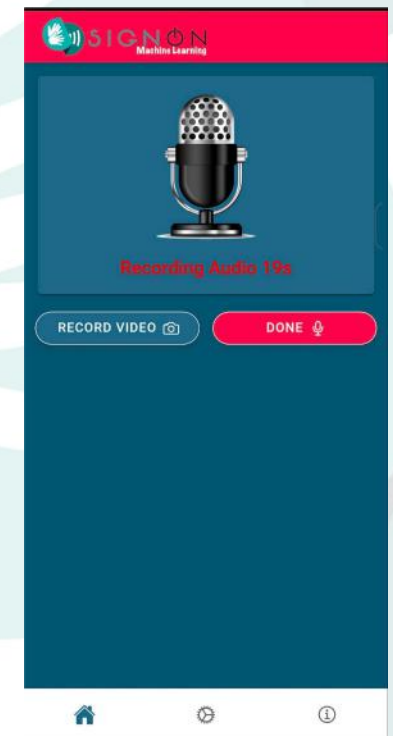
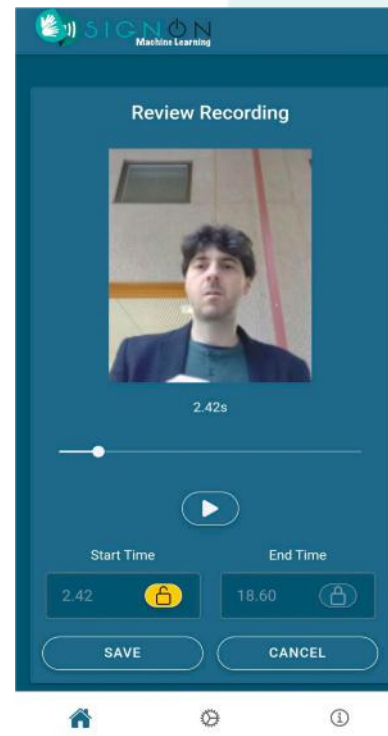
How good is this data?
not good enough



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How do we go about data?

- collect, (pre)process and organise existing data sets for the needs of A.I.
- collect new data
- focus on specific use-cases and domains
- expand the range of signers, involve the communities
- devise better, more efficient models



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Thank you!



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