

Understanding Turkish...



Dr. Ömer İleri

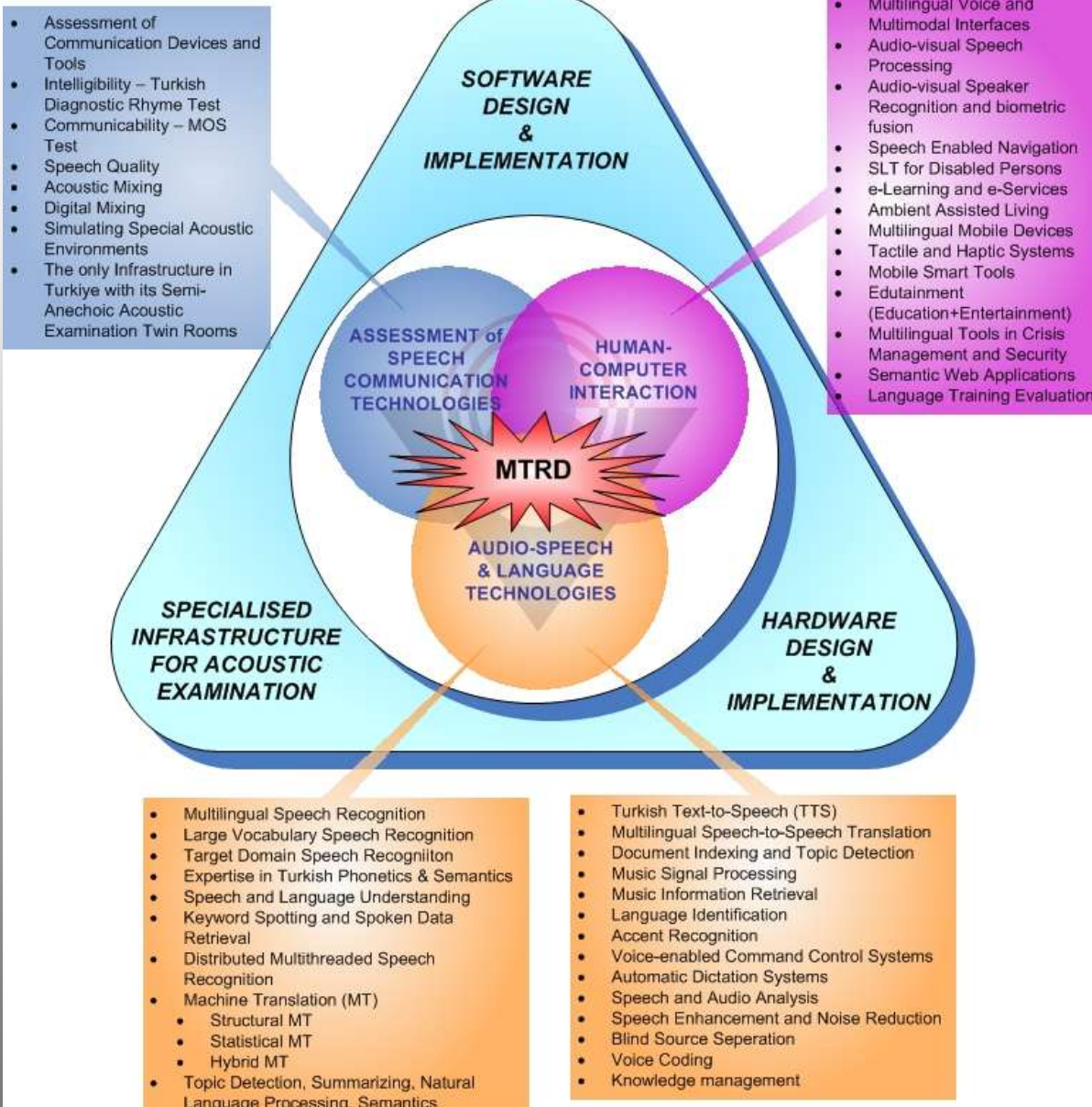
MTRD@uekae.tubitak.gov.tr

To improve the existing R&D capacity of MTRD

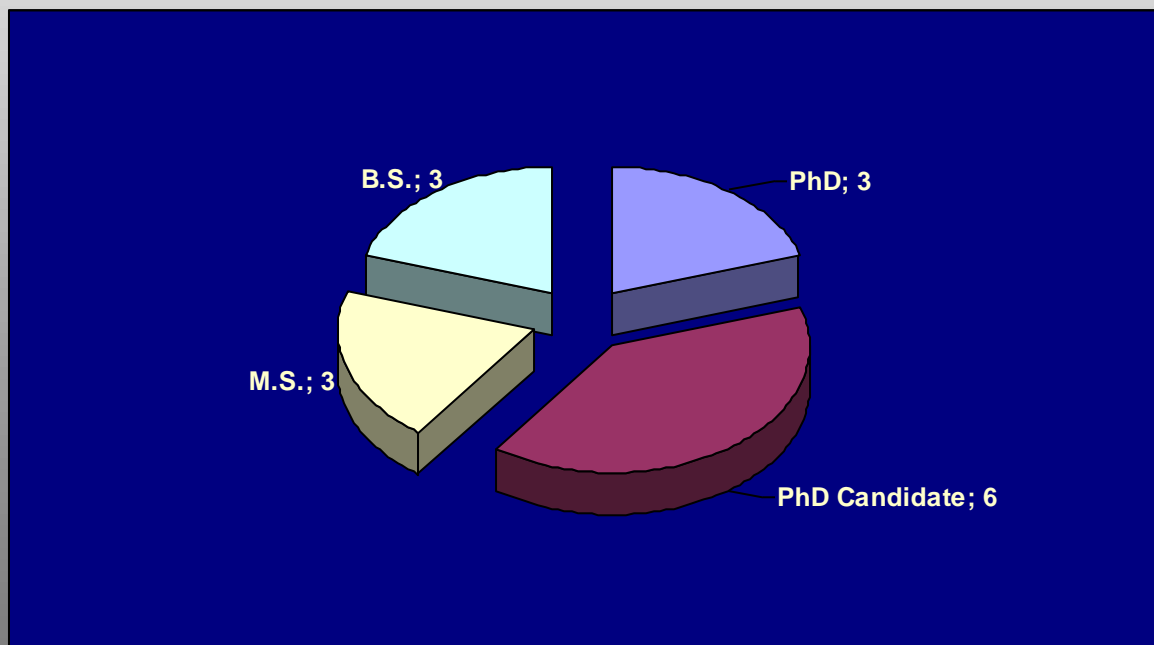
- To assess speech enabled communication technologies
- RTD of audio-visual human-computer interfaces
- RTD of voice-activated and multilingual applications
- RTD of multimodal biometrics



On the road to C3PO



- MTRD Team:
 - 15 Researchers, Electronics Engineers and Computer Scientists,
 - Ph.D.'s and Grads from Top Turkish and US Universities (İTÜ, Koç, Bilkent, Boğaziçi, Sabancı, USC, Univ. of Washington, Rutgers University, etc.)
 - Total of 50 researchers including comm. sys. Development groups. (hardware, software developers working on secure cell phones, voice encoders, etc.)



Where do we stand?

Speech Communication Assessment

- Assessing Turkish speech intelligibility (Nato's Diagnostic Rhyme Test)
- Only group in Turkey in possession of semi-anechoic acoustic chambers



Audience Test Chamber

Speech Processing, Recognition

- 97% accuracy in speaker adapted ASR in Turkish broadcast news domain
- 85% accuracy in speaker independent ASR in Turkish broadcast news domain
- Only group in Turkey in possession of semi-anechoic acoustic chambers

Natural Lang. Processing and MT

- Top Scores in International Workshop on Spoken Language Translation (IWSLT).

[•2009 TR-EN parallel texts are provided by MTRD!](#)

Phonetics, Synthesis

- Leadership in Turkish Speech Synthesis
- Domain-specific or general-purpose multilingual text-to-speech solutions

Music Signal Processing

- Music tracking: Special focus on Turkish music
- Audio copy detection, jingle detection

UEKAE-MTRD →



Speaker Recognition

- Less than 3% EER in 500-speaker database in harsh conditions
- Less than %2 EER in 100-speaker audio-visual database

- Turkish Speech Processing Platform, for Turkish Army, finished in June 2009
- Turkey's eID project, now in pilot phase
- Turkish vocoders specific for various communication devices, finished in 2006 (used in MILCEP)
- TREN: Turkish Recognition ENgine: A general purpose engine capable of speech/speaker recognition and behaviour activities detection/classification finished in 2007 (used in various projects)
- Music tracking system for royalty rights management (started in November 2009)
- Automatic Dictation System for Autopsy reporting (Finished in 2008)
- More...

How do we position ourselves?



- 83 mil. Turkish speakers (5 mil. in Europe)
- 180 mil. Turkic Lang. Speakers
- Less studied- agglutinative

**Critical for
e-Europe**

MTRD –

Unique group which has expertise on both speech and text technologies in Turkish.

YOUR PARTNER IN TURKEY!

- We have interest on FP7 and other international bilateral and/or multilateral projects in the related fields through
 - FP7 ICT, SEC, ICT-PSP, INFRA, Marie Curie calls including but not limited to
 - Digital libraries, digital content management
 - Multilingual web
 - Future Internet, Trustworthy ICT
 - Ambient Assisted Living, haptic and tactile portable devices
 - Living Labs
 - Digital Cultural Heritage
 - Crisis management
 - Border security
 - Transnational communication
 - eLearning
 - eParticipation and eGovernance
 - etc.
- Other international funds such as ARTEMIS, EUREKA, etc.
- Bilateral consortiums
- Capacity building projects and participation in networking events
- Participation in NoEs or CoEs.
- Sharing language sources

- Multisaund Project:

Vision

- to become one of the **leading RTD groups** in speech and language processing;
- to be a prominent group **especially in Turkish-related** systems;

Mission

- to **facilitate and improve** its existing capacity to design and implement new secure and interactive technologies in the related fields;
- to be a **partner of joint networks and projects** in both national and international levels.

Bridging Multilingual Technologies



www.multisaund.eu

MULTilingualism **I**ntegrated to **S**peech &
Audio **UN**derstanding

REGPOT-2008-1

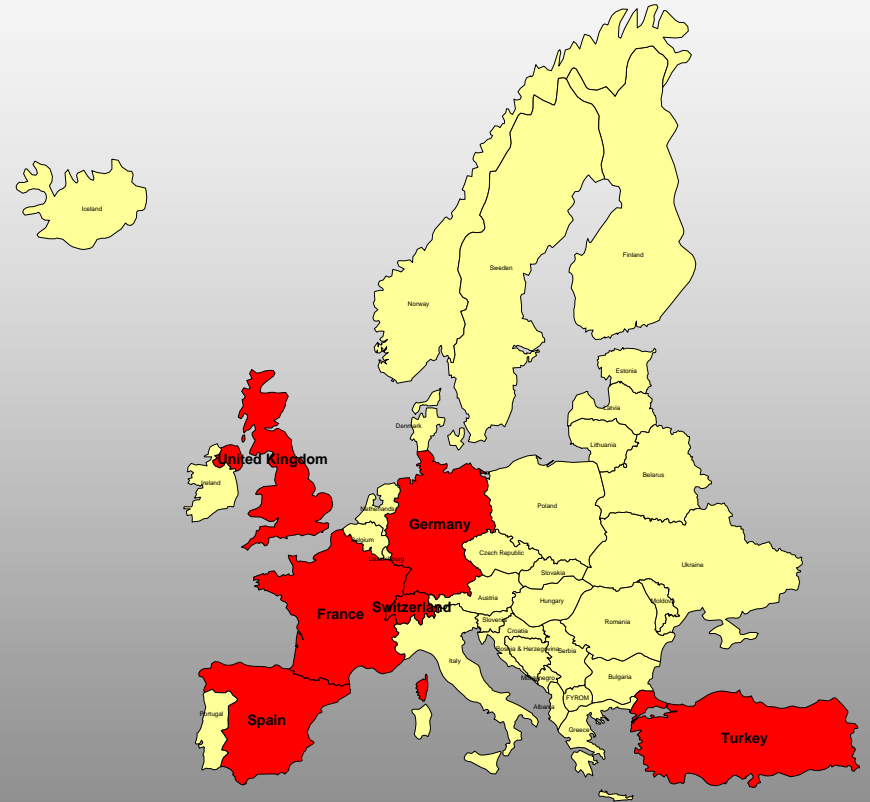
Project received full brick (15/15) from the
Commission and started in 1st of April, 2009

- **Specific Objective 5: Maximization of Potential Research Benefits (Scientific Steering Committee)**
 - *First meeting held in Istanbul (2 possible project ideas to be submitted to ICT 2011)*
 - *3 Proposals submitted to ICT PSP 2010, ICT Call 5, REGPOT 2010*
 - *2 or 3 proposals are being developed for ICT Call 7*
 - *Application to national projects (2 research projects, 1 capacity building)*
 - *Application to Turkish-Syrian bilateral joint research programme with 1 research project*
 - *Participation in renowned conferences with contribution to literature (IWSLT 2009, Interspeech 2010, SIU 2010, NIST Speaker Recognition Evaluation Workshop 2010, ACL 2010)*
 - *Participation in networking events (ESOF 2010, WIRE 2010, Workshop of the Networking initiative for ICT)*
- **Specific Objective 6: Improvement of S&T Capacity of Researchers (Training courses, short visits, participation to conferences)**
 - *Several meetings with researchers in Turkey, including ones from GSM operators*
 - *Collaboration with universities in NUTS-II regions in Turkey*
 - *Invitations to join network of excellence (Flarenet)*

Increased Competitiveness



- The committee members
 - Dr. Baris Bozkurt, Izmir Institute of Technology, Turkey
 - Prof.Dr. Andrzej Drygajlo, EPFL, Switzerland
 - Prof. Dr. José A. R. Fonollosa, Polytechnic Univ. of Catalonia, Spain
 - Dr. Hakan Erdogan, Sabanci University, Turkey
 - Prof. Dr. Joseph-Jean Mariani, IMMI, France
 - Prof. Steve Renals, University of Edinburgh, UK
 - Prof. Mehmed Ozkan, Bogazici University, Turkey
 - Dr Cristina Vertan, University of Hamburg, Germany



Objective ICT-2011.5.3 - Patient Guidance Services (PGS), safety and healthcare record information reuse

Trusted-PGS - A Participative, Personalised and Trusted Patient Guidance Service



Objective ICT-2011.8.2 ICT for access to cultural resources

BIOTTOMATA - Multilingual Access to Digital European Historical Archives (Roman, Byzantine, Ottoman, etc.)

Objective ICT-2011.8.1 Technology-enhanced learning

PoliLearn: A portal that makes video lectures originally available in English accessible to speakers of Spanish, Turkish, Finnish and Bulgarian (or other languages).



Objective ICT-2011.4.2 – Language Technologies

Multilingual communication between S&R teams in crisis management (S2S)
- including social factors and demography.

MTRD

Multimedia Technologies Research & Development Laboratory

www.uekae.tubitak.gov.tr/mtrd

www.multisaund.eu

TUBITAK-UEKAE, PO Box: 74, 41470, Gebze,
Kocaeli, Turkey.

Mehmet Uğur Doğan,

+90 262 6481396

mugur@uekae.tubitak.gov.tr

Alper Kanak

+90 262 6481350

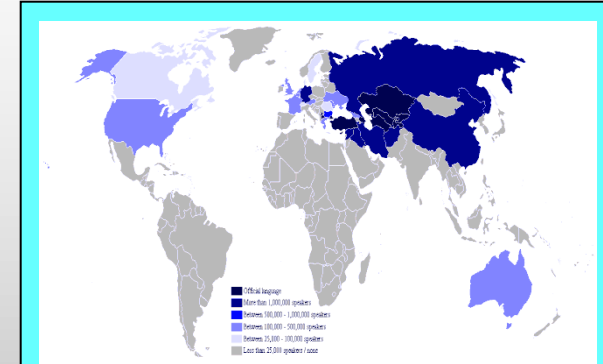
alperkanak@uekae.tubitak.gov.tr

Dr. Ömer İleri

+90 262 6481882

omer.ileri@uekae.tubitak.gov.tr

mtrd@uekae.tubitak.gov.tr



Understanding Spoken Turkish language

