

SpeDial: Spoken Dialogue Analytics

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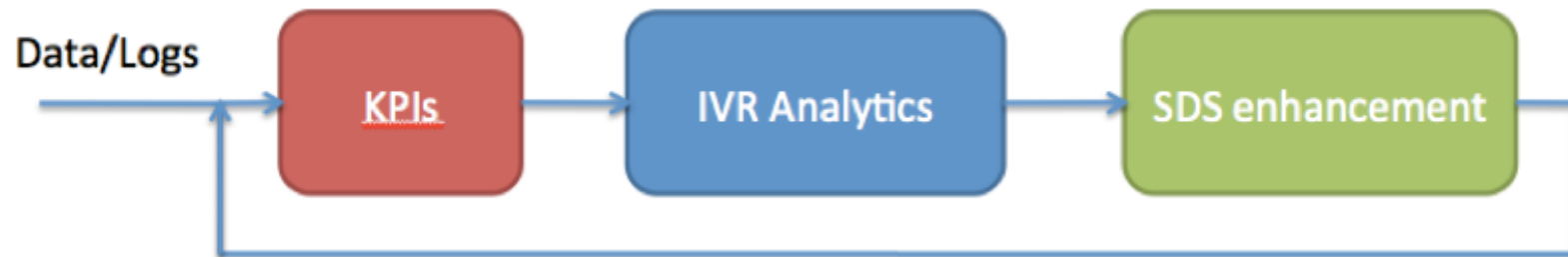
Motivation

- Significant effort and expertise for **enhancing performance of deployed speech services** and **customization** to specific user populations, i.e., service doctoring
- **Speech analytics** technologies facilitate extraction of relevant information from "big" speech data, e.g.,
 - audio mining for key-words and topics,
 - affective analysis,
 - analysis of speaker population characteristics,
 - attitudes and behaviors



Main Goal

- Our aim is to apply speech analytics technologies towards the creation of a **multilingual service-doctoring platform** that semi-automates this process (**human-in-the-loop**)



Human in the loop

- Spoken language modeling has a **long-tail**
- The automation bottleneck

automation



performance

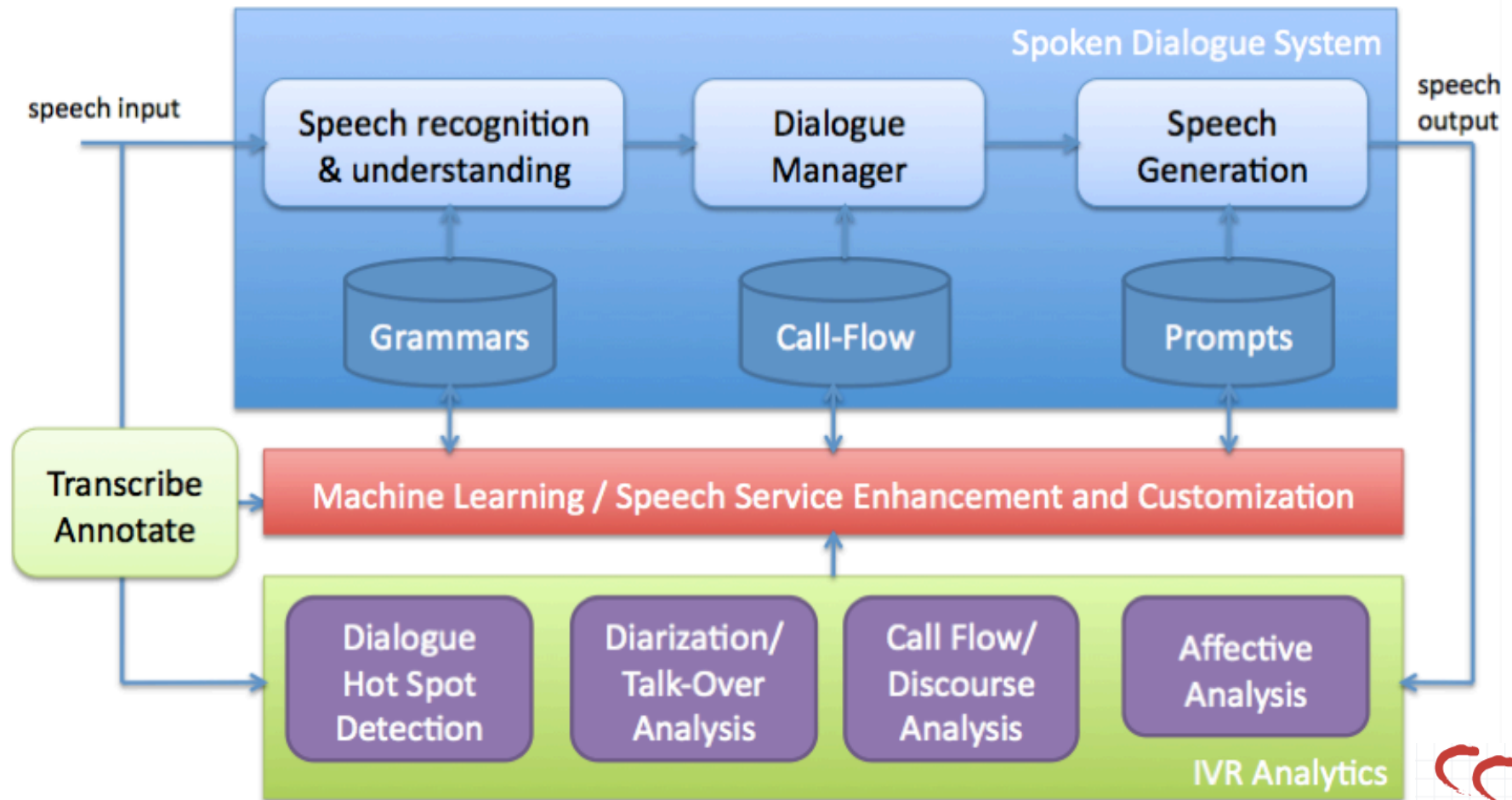
- A machine-aided approach is the **cost-effective solution**
- Leave the **human-in-the-loop**, e.g., assembly line, operator fallback

SpeDial Objectives

- Devise **machine-aided** algorithms for **spoken dialogue system tuning** for **deployed call-center** applications
- Create a **platform** that supports **cost-effective service doctoring** for
 - **service enhancement** where the developer starts from an existing application and tries to improve KPI performance and user satisfaction,
 - **service customization** where the developer addresses the special needs of a user population
- Create and support a **sustainable pool of developers** that will be trained to use the platform

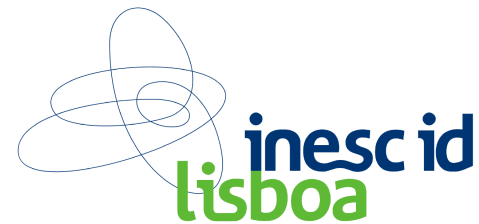


Main Concept



Partners

- Expertise: language engineering, corpus linguistics, spoken dialogue systems, speech services, spoken dialogue tuning/customization



SpeDial Applications and Languages

- SpeDial will **focus on call-center IVR applications** where speech analytics and speech service enhancement are most relevant
 - preliminary list of call-center application domains: **telecom customer service, health and finance**
- SpeDial languages:
 - English, French, Portuguese, Spanish, Greek
 - Other relatively **under-resourced languages** such as Turkish, Hebrew and Polish will also be addressed based on SME's business needs



SpeDial Outputs

- A single integrated platform
 - [Speech Analytics](#) Module
 - [Speech Services Doctoring](#) Module
- [Deployed multilingual speech services](#)
 - in the telecom, health and finance call-center application domains
 - will be tuned using the SpeDial platform
- Outputs towards research:
 - [Open-Source Software](#) for affective modeling and discourse analysis
 - Free Annotated [Data](#)



PortDial - Challenge



A major **roadblock** in spoken dialogue system (SDS) design is the **lack of linguistic resources** that would enable the **rapid porting of speech services to new domains and languages**

Main Innovations

Technological Innovation:

Combining **knowledge-based** and **data-driven** approaches for ontology and grammar induction from web-harvested data

Market Innovation:

1. Speech services prototyping/porting platform reduces **time-to-market** and **barrier-to-entry**
2. Spoken dialogue resources/data as a **service**



Target Groups

- **SMEs** worldwide in the mobile application development industry lacking the expertise/resources to develop speech services in-house
- **Speech services integrators** requiring tuning of applications
- **End-users** in search of top performance
- **Non-commercial actors** including the research community



Impact

The SDS linguistic resources **will lower the barrier to entry** for European SMEs to speech services, allowing for inexpensive proof-of-concept demonstrator development, **opening up new markets and application domains**

