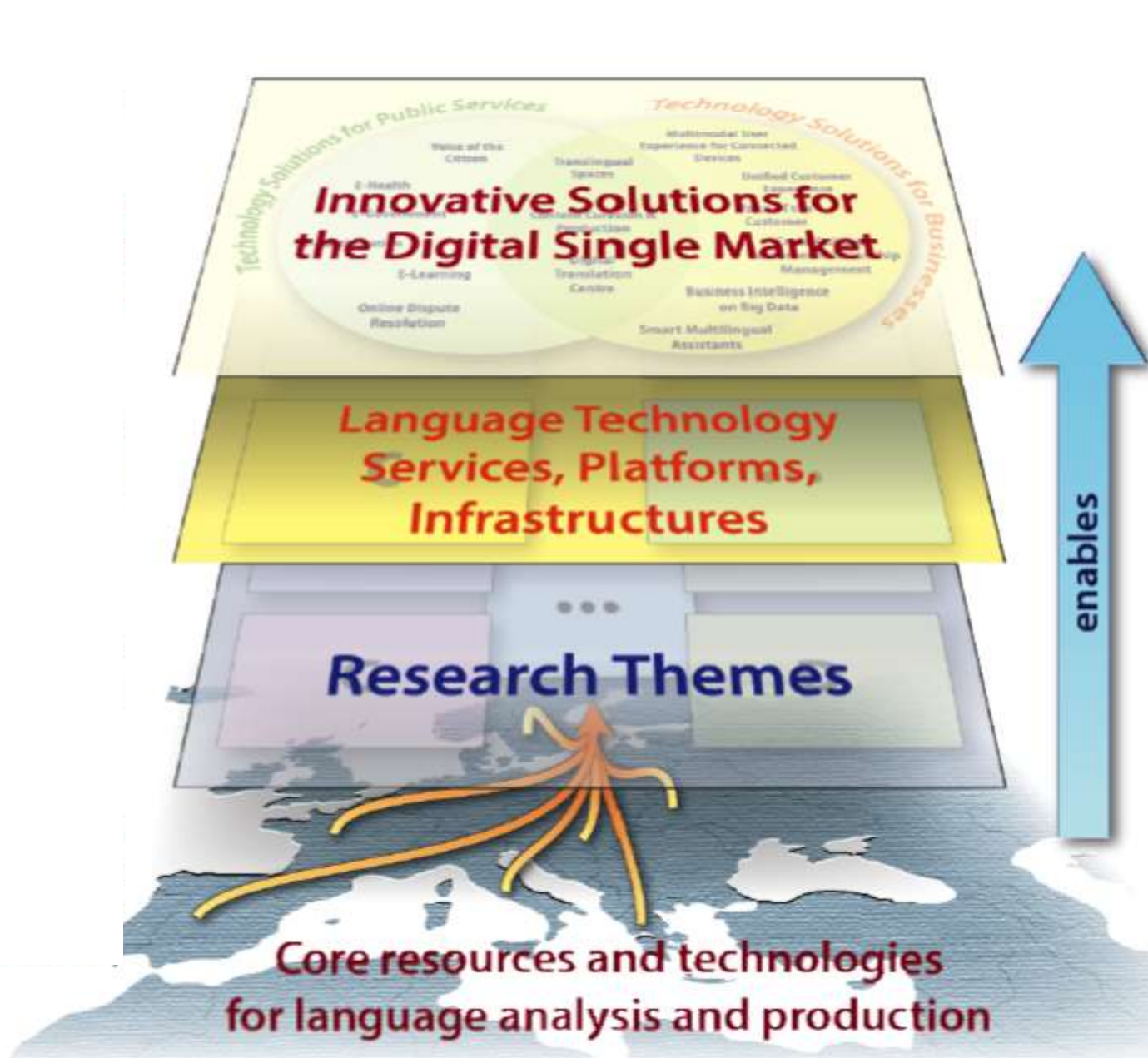




Strategic Agenda for the Multilingual DSM: A Research Perspective

Hans Uszkoreit
DFKI

SRIA Three Layers





Research: Three Major Challenges

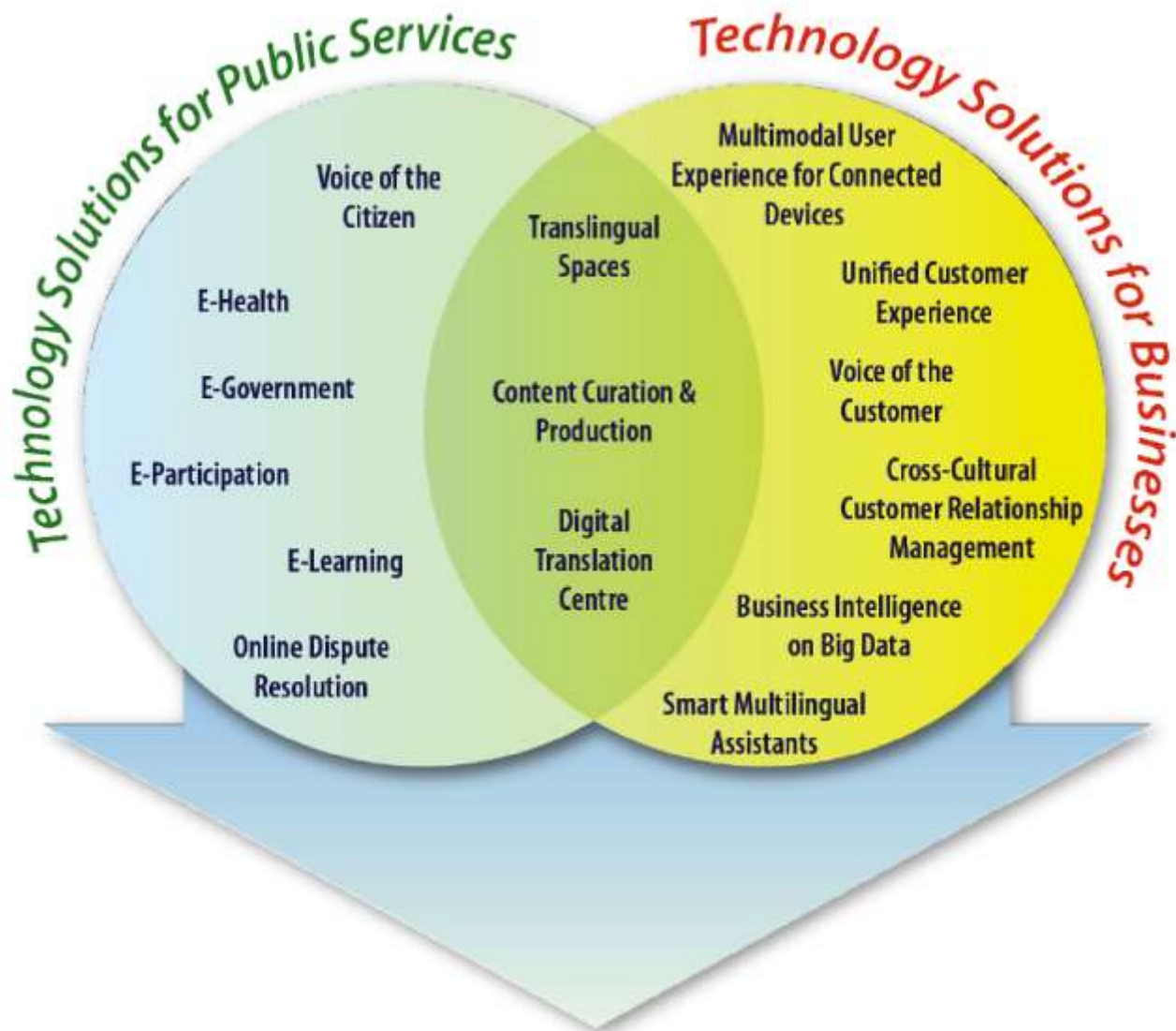
- 1. Richness and diversity:** A serious challenge is the sheer number of languages, some closely related, others distantly apart. Within a language, technology has to deal with numerous dialects, sociolects, registers, professional jargons, genres and slangs.
- 2. Depth and meaning:** Understanding language is a complex process. Human language is not only the key to knowledge and thought, it also cannot be interpreted without certain shared knowledge and active inference. Computational language proficiency needs semantic technologies.
- 3. Multimodality and grounding:** Human language is embedded in our daily activities. It is combined with other modes and media of communication. It is affected by beliefs, desires, intentions and emotions and it affects all of these. Successful interactive language technology requires models of embodied and adaptive human interaction with people, technology and other parts of the world.

- ↻ Broad Learning
- ↻ Deep Learning
- ↻ Contextualized Learning
- ↻ Combination of different data and knowledge resources
- ↻ employment of people in the learning process



Most often suggested types of platforms

1. specialized & generic language resources (corpora, tools, lexicons, etc.)
 - ⊙ future META-SHARE, CLARIN
2. basic processing components (sas systems for n languages)
 - ⊙ BLARKs, European Language Cloud
3. one-stop translation cloud (MT and human translation)
 - ⊙ Translingual Cloud, European Translation Cloud
4. multilingual semantic resources & processing (NEE, terminology, WSD, KG)
 - ⊙ European Knowledge Graph



Multilingual Digital
Single Market



Successful Imperfect Technologies

- ↻ Google Translate, Moses
- ↻ Apple's Siri, Google Now
- ↻ Microsoft's Cortana
- ↻ Autonomy's text analytics

The Digital Single Market



The Digital Single Market





↻ Most interaction in a market is communication

- ⊙ pre-sales communication
- ⊙ sales communication
- ⊙ after-sales communication

↻ The actual transaction is the smaller part of market interaction

- Realizing the Multilingual Digital Single Market
- Enabling the Free Flow of Information, Knowledge and Thought
- Turning Europe into the Homeland for all its Citizens

Translation Services for the Digital Single Market



Translation Integrated in Many Services



Translation Integrated in Many Services



Translation Integrated in Many Services

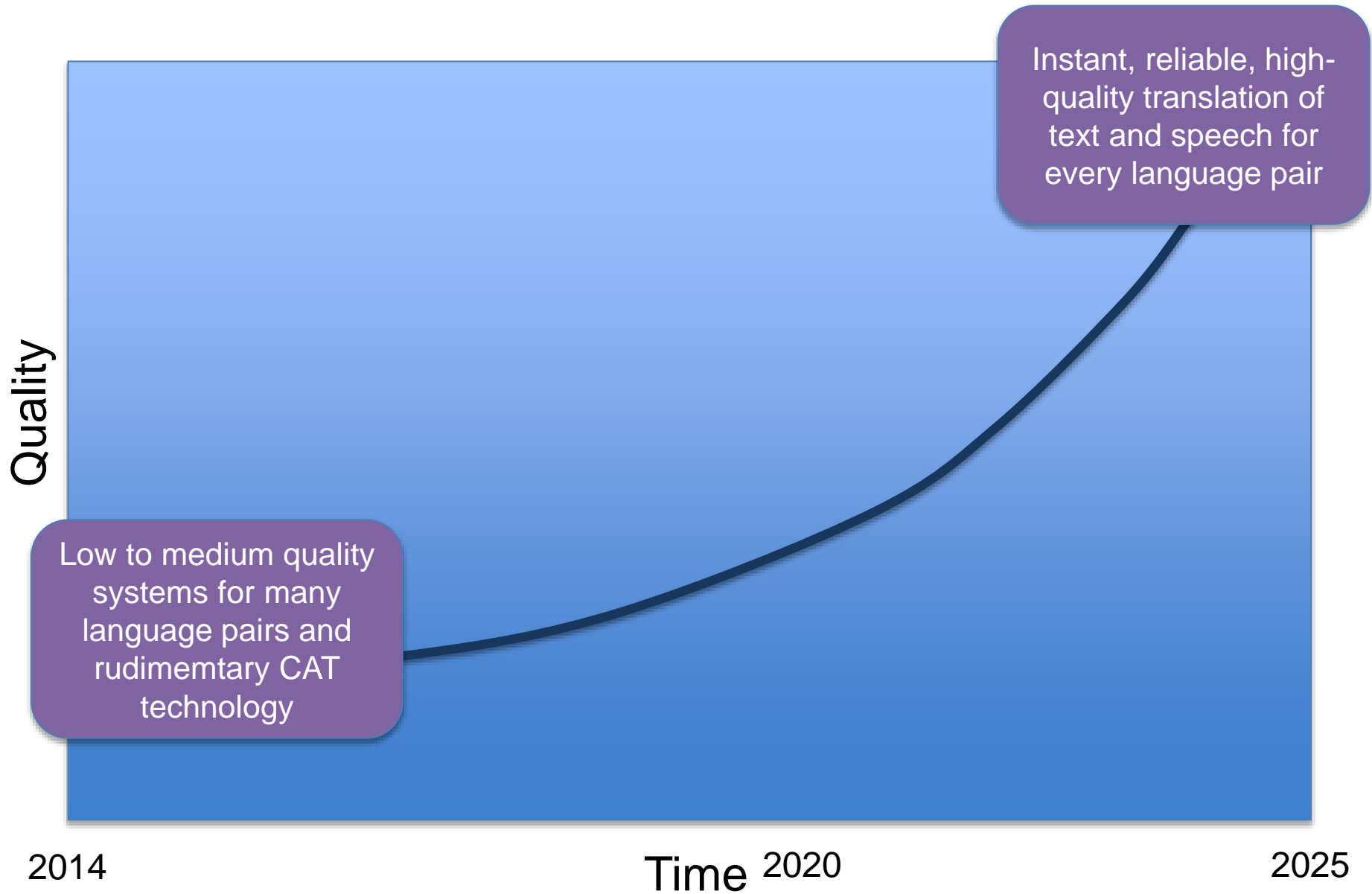


Translation Integrated in Many Services

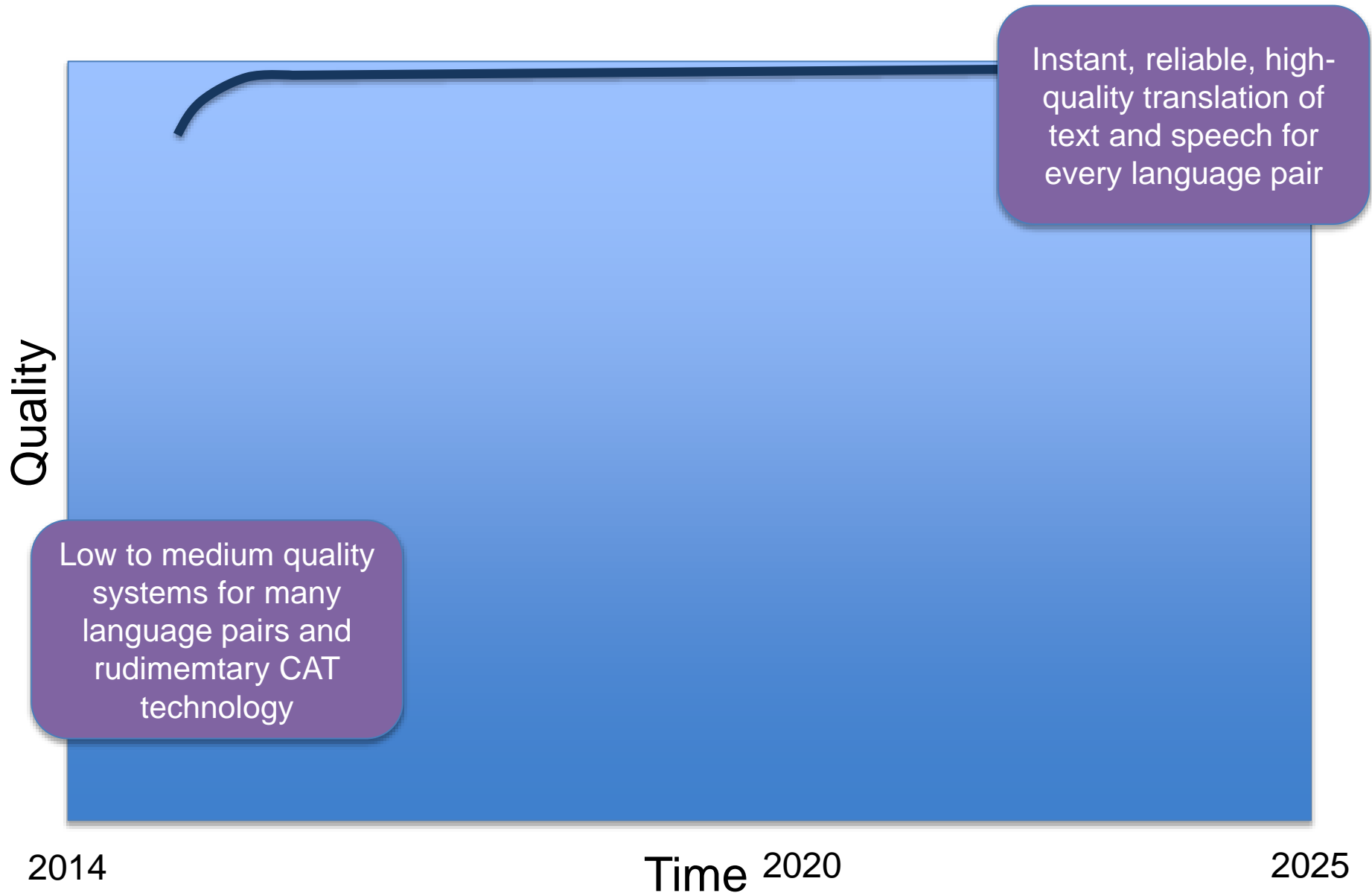


- combination of HQHT, qualified crowdsourcing, CAT and FAMT
- combination with semantic technologies, structured knowledge
- combination of free and paid services (both for HT and for MT)
- deliver services of lower and very high quality from the start

A Research View



A Research View



Quality

Instant, reliable, high-quality translation of text and speech for every language pair

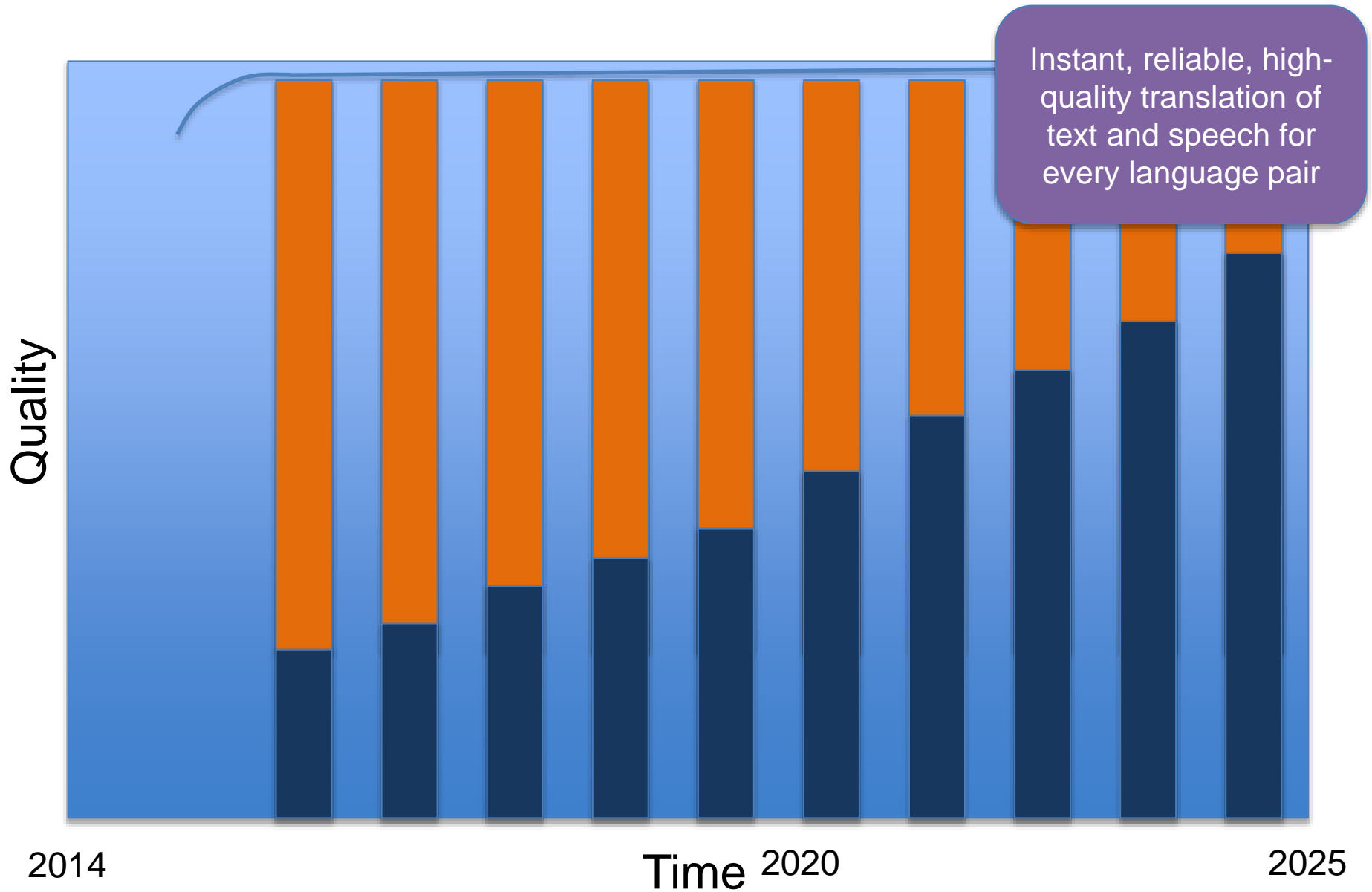
Low to medium quality systems for many language pairs and rudimentary CAT technology

2014

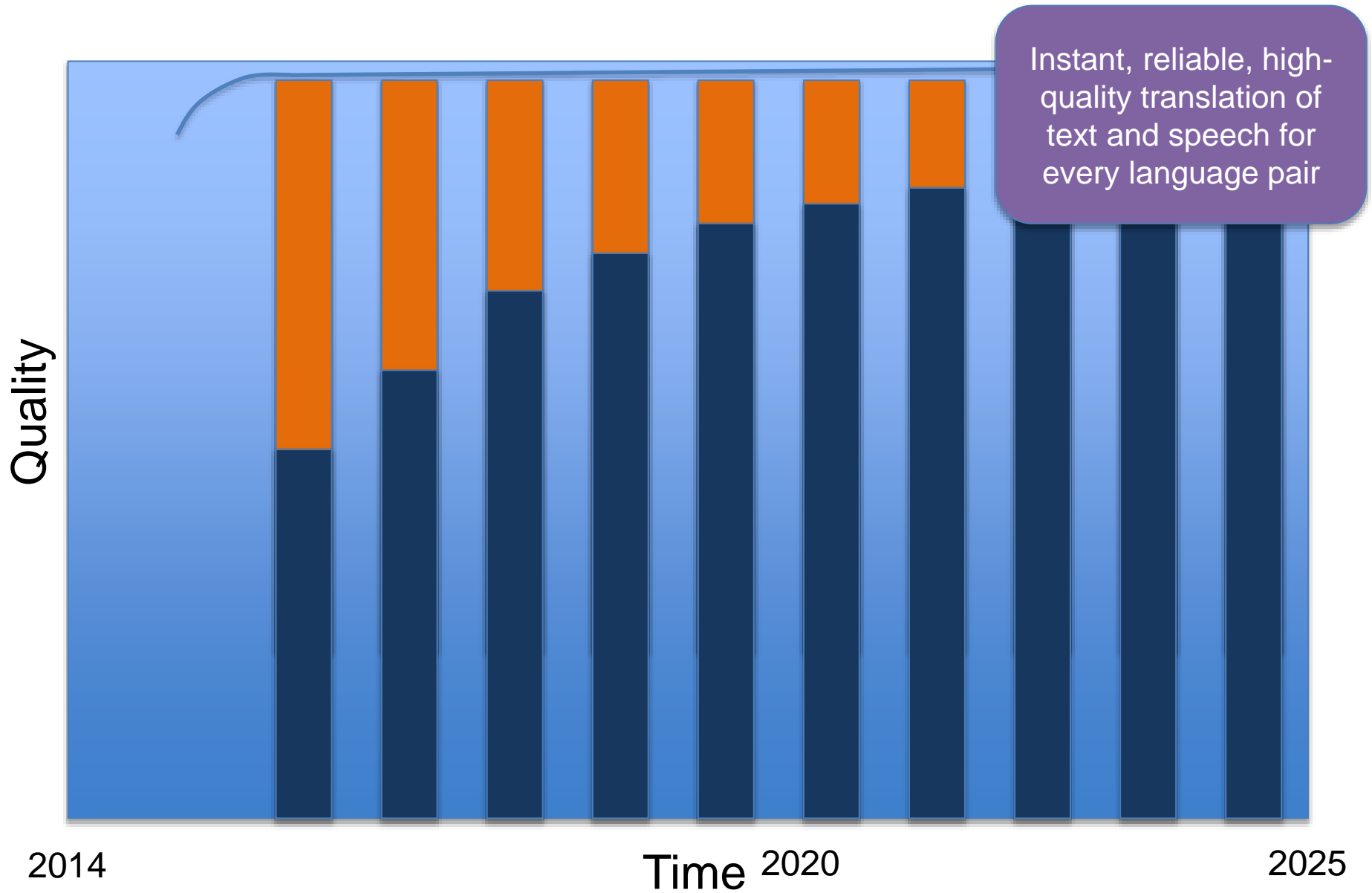
Time 2020

2025

A Research View



In Volume



- ↻ Include quality-certified translation experts/companies
 - ⦿ e.g. for legal, medical, financial content
- ↻ Include security-certified services for confidentiality and privacy
- ↻ Install mechanisms for exploiting nearly all data (including confidential data) for improving technology and services



Software Support for Social Decision Processes

- ❧ Discussion forum platforms
 - ⦿ large volumes, simple structure, no reporting or overview functions

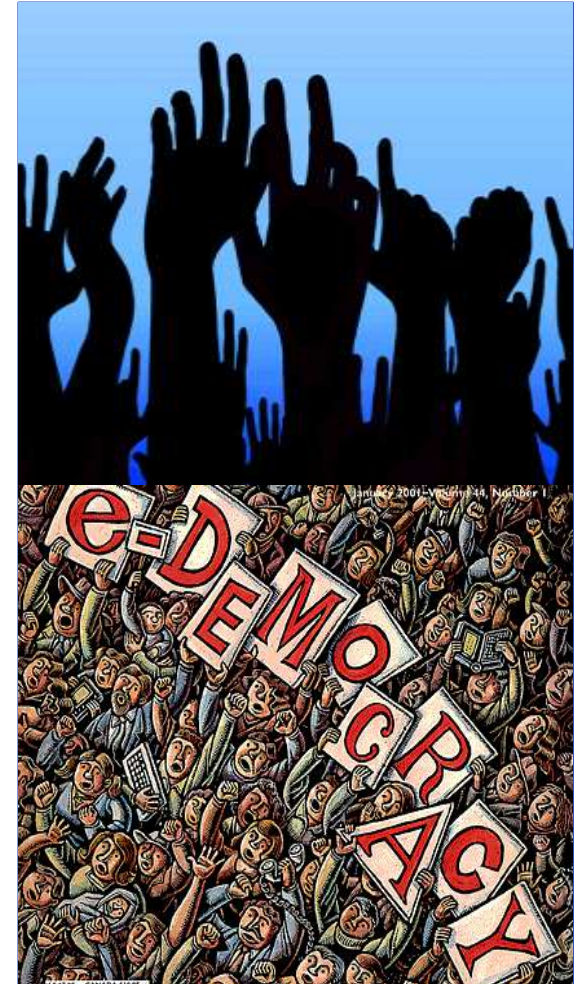
- ❧ Collective decision support systems
 - ⦿ small volumes, complex structure, some reporting and overview functions

- Why do we need large scale?
 - ⌘ much higher probability of innovative contributions
 - ⌘ justified interest and right of the people to be included
 - ⌘ higher degree of authority of the outcome



New Forms of Participation and Democracy

- E-democracy
- Liquid Democracy
- Massive participation
- Transparency
- New combinations of representative and direct democracy



- ❧ We foresee a strong need for web applications that support social intelligence processes
- ❧ Social intelligence is an area of applications that support individual and collective decisions based on opinions, argumentation and collective deliberation.
- ❧ In a narrow sense of the term, business intelligence is similar to business intelligence, military intelligence or civil security intelligence, except that the area of decision making is the social domain and a major decision criterion is the opinions and demands of larger groups of people.
- ❧ In a wider sense, social intelligence differs from the other areas of intelligence applications in the degree of involvement of the affected social groups.



Translation Integrated in Many Services

