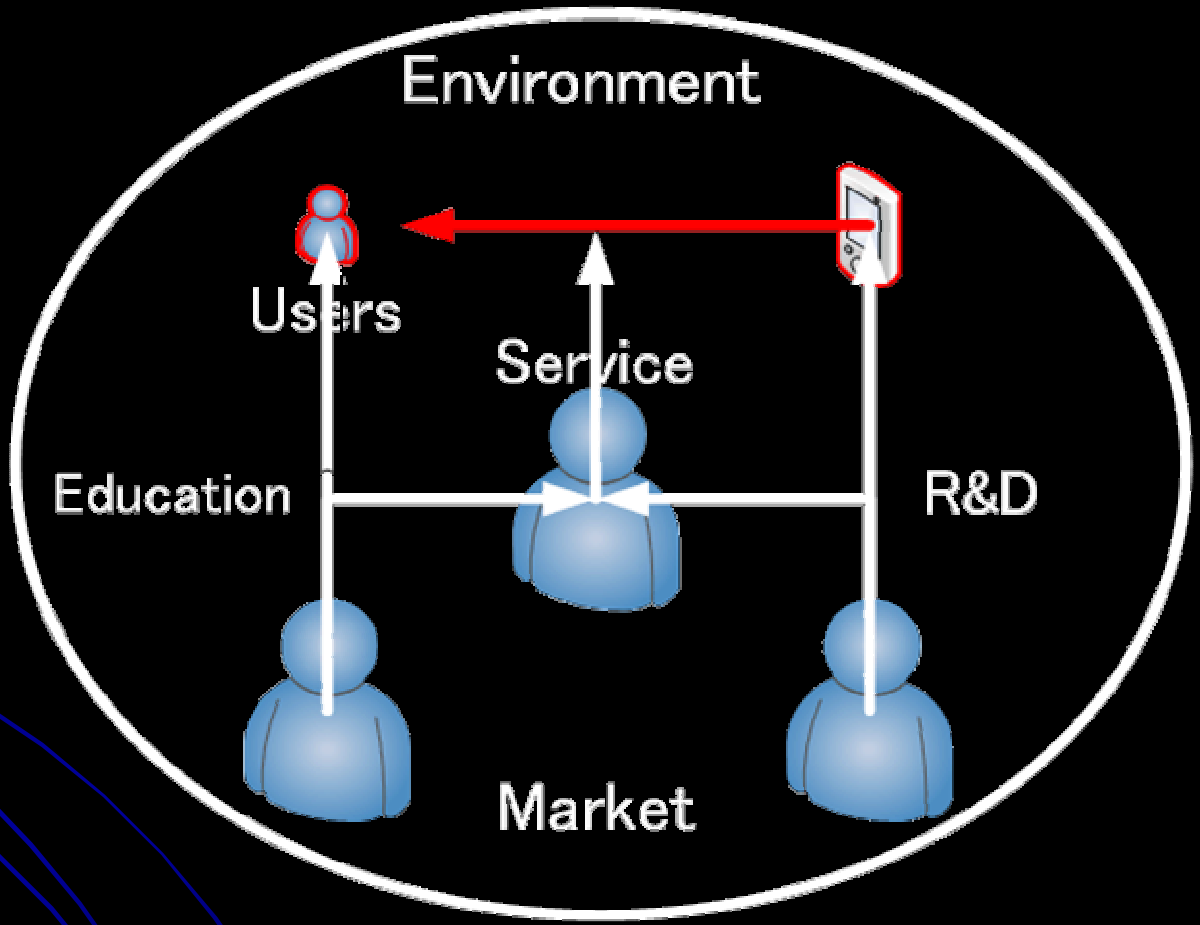
Development of ICT-based Assistive Technology for Minority Languages

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Main Theme

- Promoting the use of ICT-based assistive technology (AT) including in countries where minority languages are used

Present situation of AT



- Small number of users
- Limited range of products

High cost
→Challenging situation for industries

Present situation of AT

Many countries, particularly developing countries, have not yet reached widespread use of AT

- Financial difficulty
- Language barrier (OS, text-to-speech)
- Low support for people with disabilities

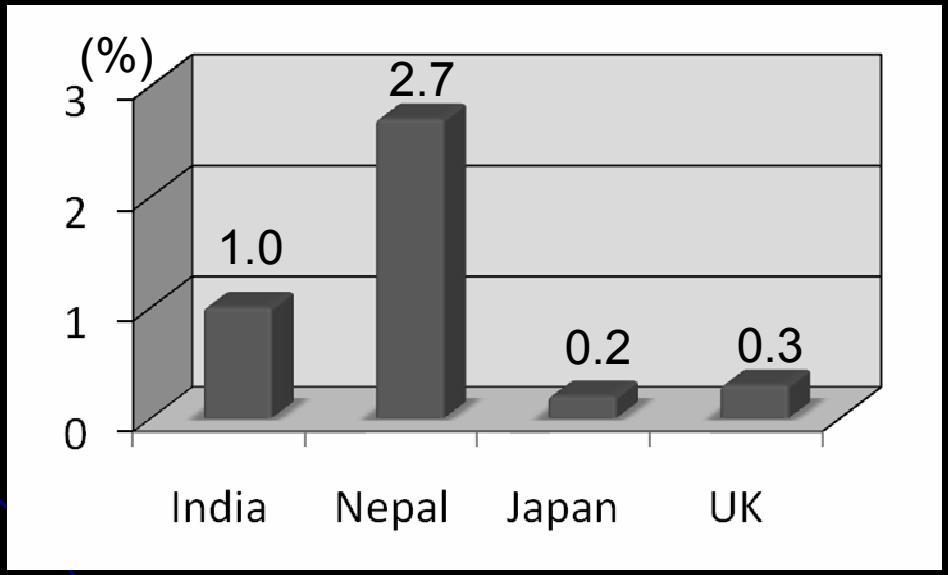
Our projects

Use of *existing* and generally available *mainstream* technology as a form of AT

1. Development of AT, e.g., screen readers, for minority languages
2. Teaching people about AT
   - Promotion of the use of accessibility features of PC
   - Use of mobile phones for PWD

Development of screen readers for minority languages

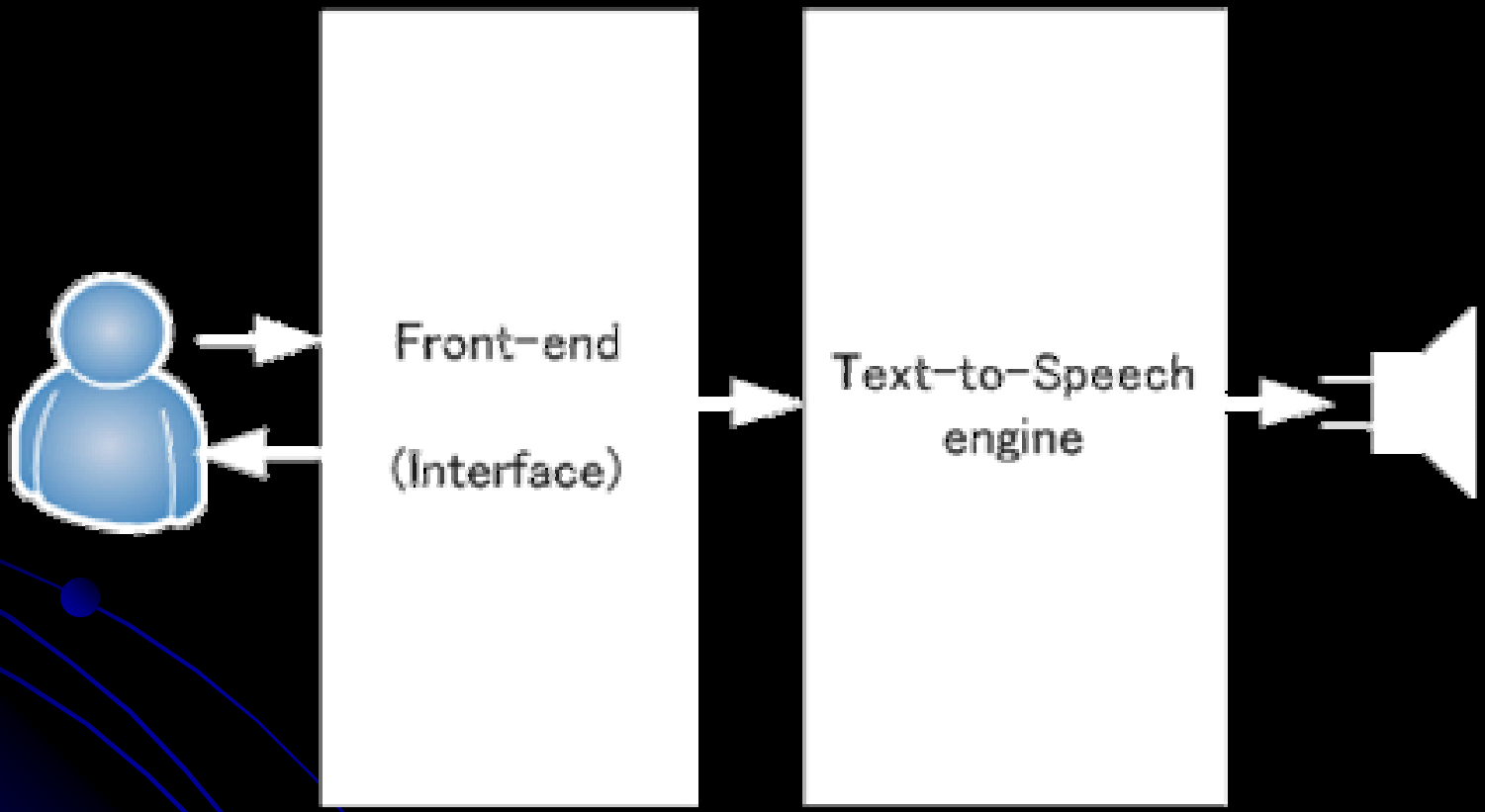
- Development cost in general:
  from US$100,000, or over US$1 million



Ratio of people with visual impairment in India, Nepal, Japan, and the UK (%)

Screen reader is particularly Important for developing countries

Basic structure of screen readers



Front-end of screen readers

- Sends on-screen text to the text-to-speech engine
- Includes phonetic adjustment

  e.g., 2: do:→dui

  6: che→cha
- Requires additional feature according to each language
- Can handle Unicode in recent years

  →Applicable to many languages in the world
- Can be free for basic functions

Text-to-speech engine

It is desirable to provide TTS engines as a basic function of OS.

- This is true for English environment.
- It promotes the use of speech/reading software for PWD.

But TTS engines do not exist for minority languages yet.

Existing TTS engines also has a barrier for end users.

The engines are bundled in other application packages.

- License problem
- High cost
- Non-standard interface (non-SAPI)

Development of screen readers for minority languages



- Collaborative research with UK
  - Hindi text-to-speech
  - Thunder (free screen reader for Windows)
  - Phonetic adjustment using regular expressions
  - Collaboration with a graduate Nepali student who is blind
- Infrastructure procurement
  - PC reuse

→A model case of developing AT for minority languages

Demonstration of Nepali screen reader

Joint workshop

- Held with the Nepal Association for the Welfare of the Blind (*NAWB*) in July 2010
- Contents
  - Nepeli screen reader for Windows
  - Text web browser (WebbIE)
  - Windows accessibility

Toward promising practices

- Development of assistive technology using existing technology
- Teaching people about AT
- Collaboration network

→a good scheme to reach
a widespread use of AT

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