



# YMC System

**Toshiyuki Takasaki,  
Vice President/CTO,  
NPO Pangaea  
[toshi@pangaeaan.org](mailto:toshi@pangaeaan.org)**



- Undergrad in precision mechanical engineering major and master thesis is about wearable tracking & sensor device on wild animals (crow and raccoon dog) in University of Tokyo
- Research affiliate in MIT Media lab from Sega
  - Met with Yumi and started NPO Pangaea
- Competitive software funding experience including IPA exploratory software project
  - Met with Prof. Ishida then as a project manager



- YMC System is a general multilingual web platform to realize YMC Model.
- At YMC Viet project, YMC System was customized in agriculture field in Vietnam.
  - Q&A BBS
  - Field Data database
  - e-Learning
- It was developed for field users in a very limited time to ‘work’ by weaving digital and analog.
  - Some parts are not optimized or well-designed ...



[Youth user (11-15 years old)]

Post & view Field Data, post Question, post Comment, read Answer,  
RiceQuiz

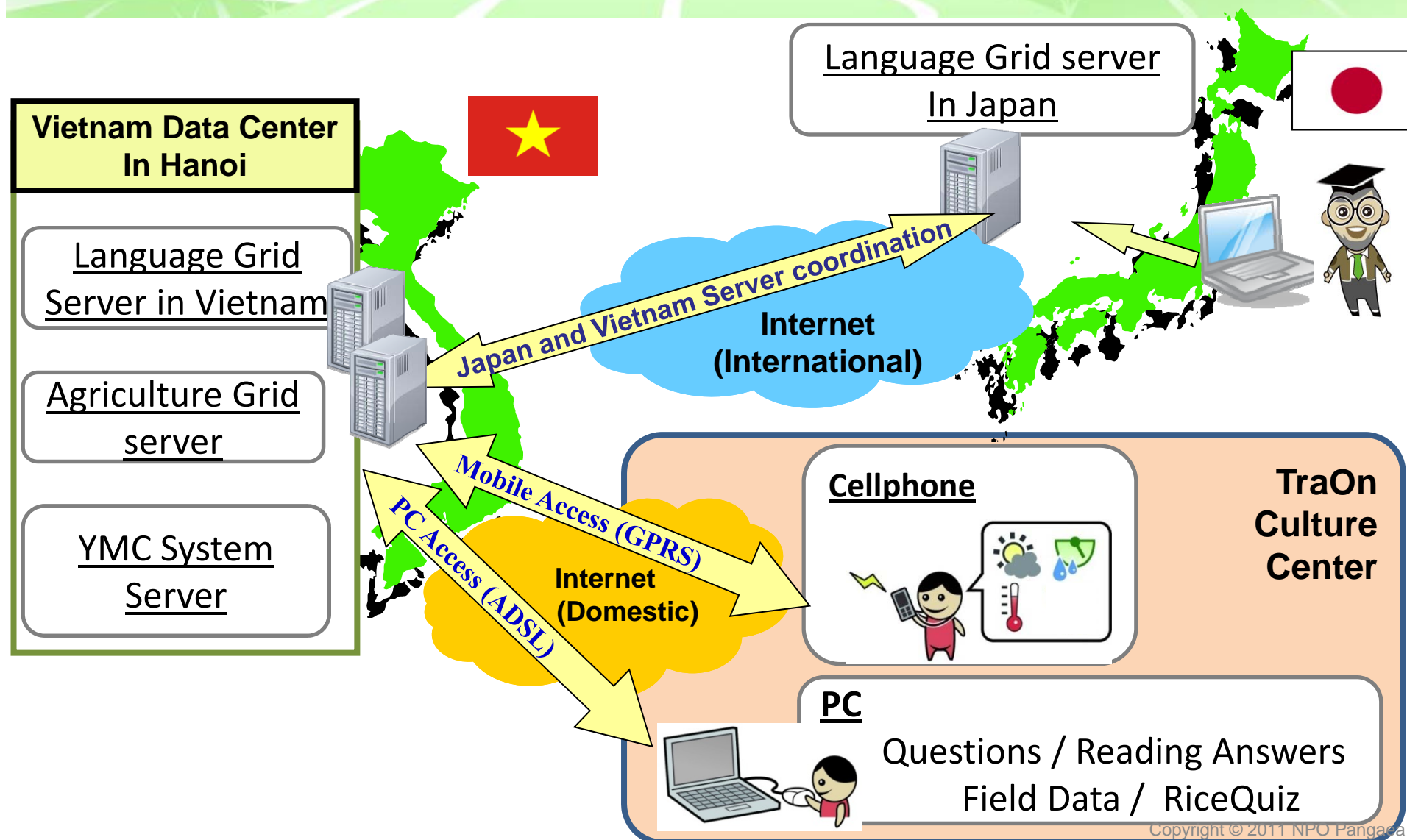
[Non-Youth user]

- Expert: Post answer, check Field Data
- Bridger: Conduct smoothing, confirm additional information such as photos and Recipe Card.
- Facilitator: Modify Field Data of Youth



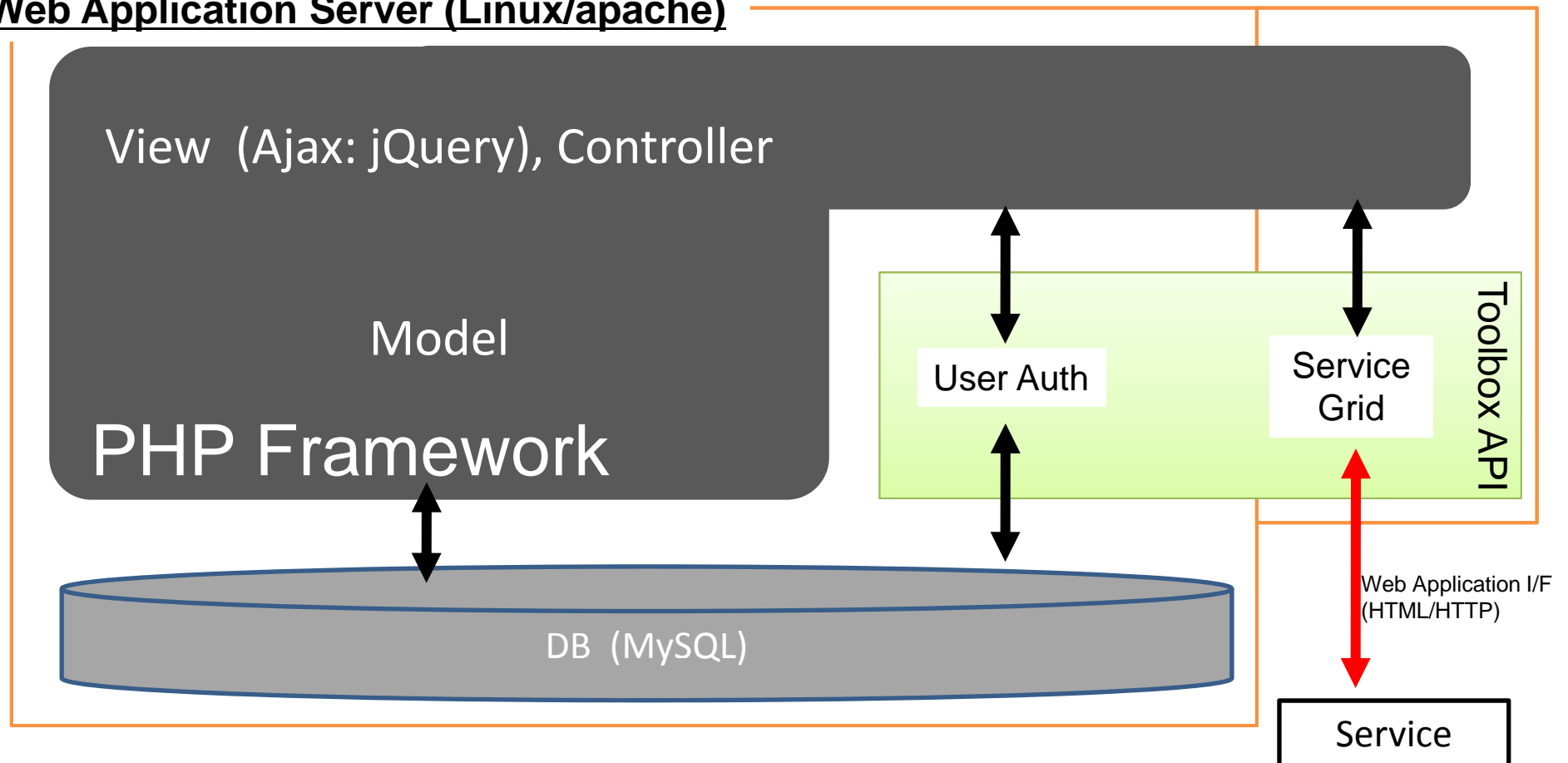
- Demo of Youth user
- Demo of Non-youth user

# System overview



# YMC System overview

## Web Application Server (Linux/apache)



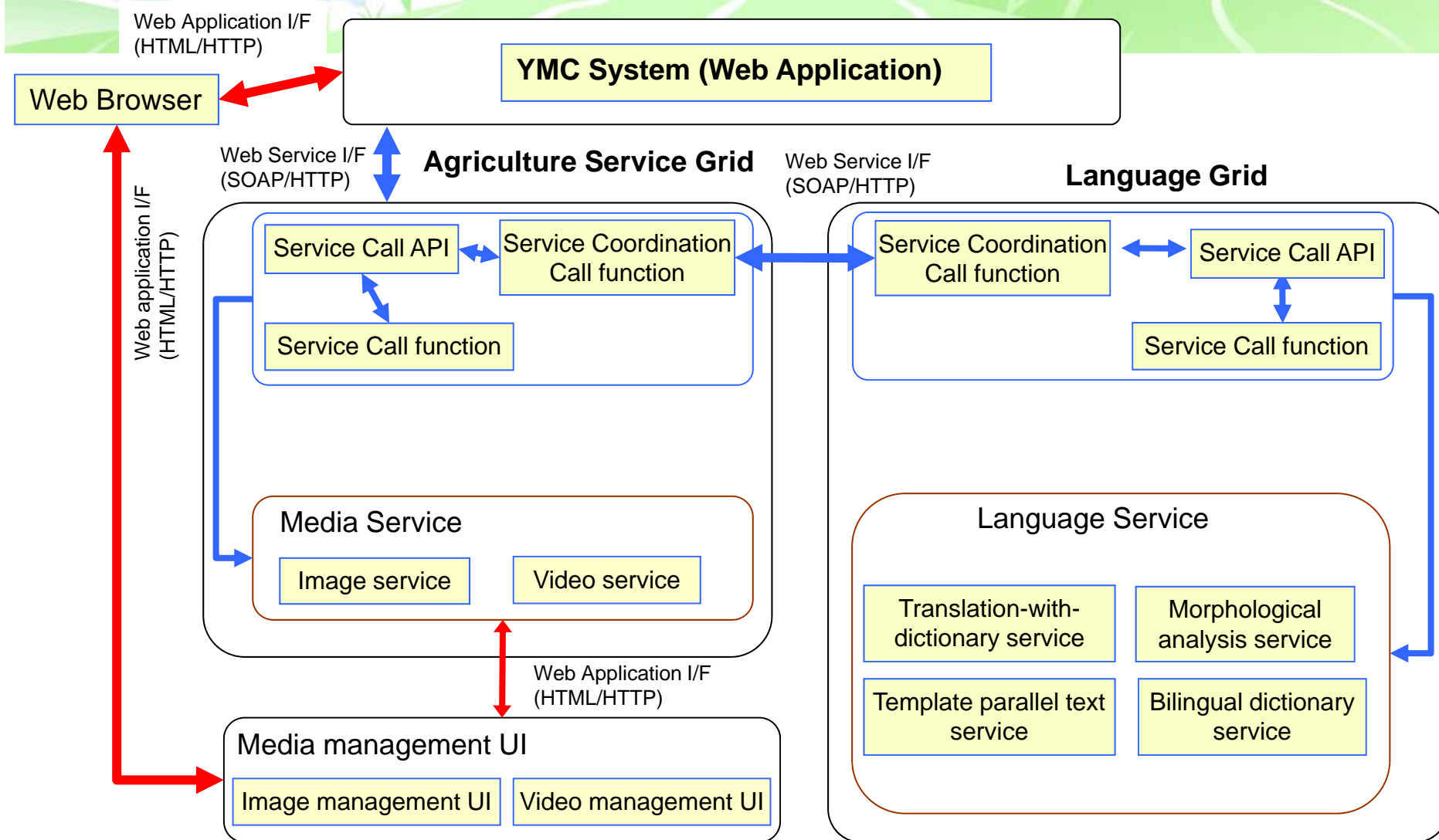




- **Developed by NICT** (National Institute of Information and Communications Technology) and **operated by Kyoto University** in Japan.
- **Service Grid: Cloud-base Infrastructure**
  - Language Grid
    - Machine Translation with dictionaries
    - Parallel Text translation
  - Agriculture Grid
    - Agriculture Knowledge-base



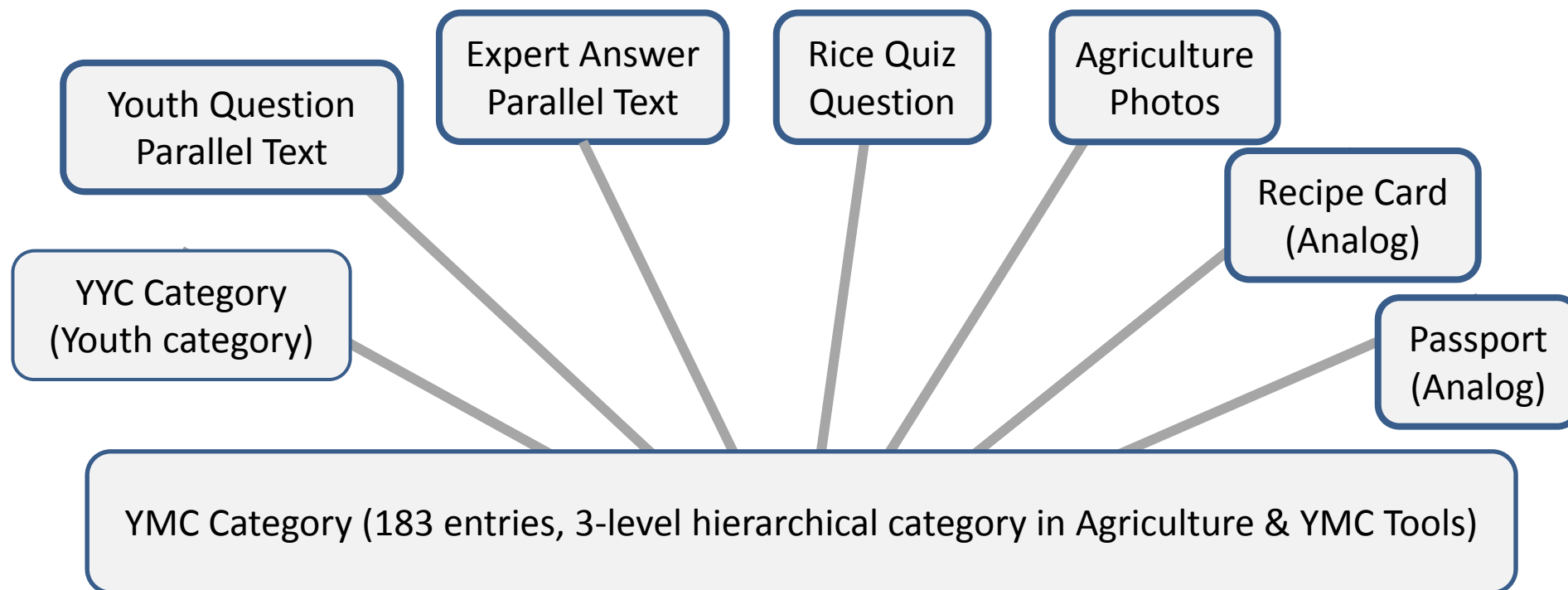
# Service Grid overview



# Services to YMC System

- **Language Grid**
  - Machine translation with bilingual dictionary service
    - Morphological analysis service
    - Bilingual dictionary service
    - Back translation service / Multi-hop translation service
  - Parallel Text service
    - Template Parallel Text service
- **Agriculture Grid**
  - Image service
  - Video service (prototyped)
  - Q&A service (prototyped)

# Resources in YMC Viet



YMV Category is a structure for almost all resources in YMC Viet project.  
It was defined by experts from scratch at this project.

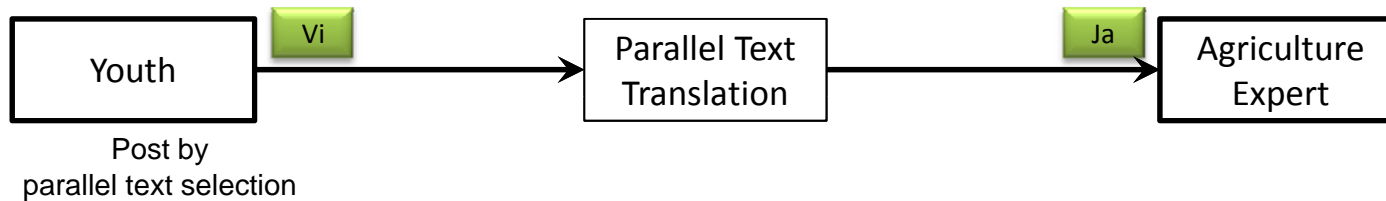
Flexibility issues: - Current system doesn't cover topics beyond YMV Category.

# Language barriers and Bridger support

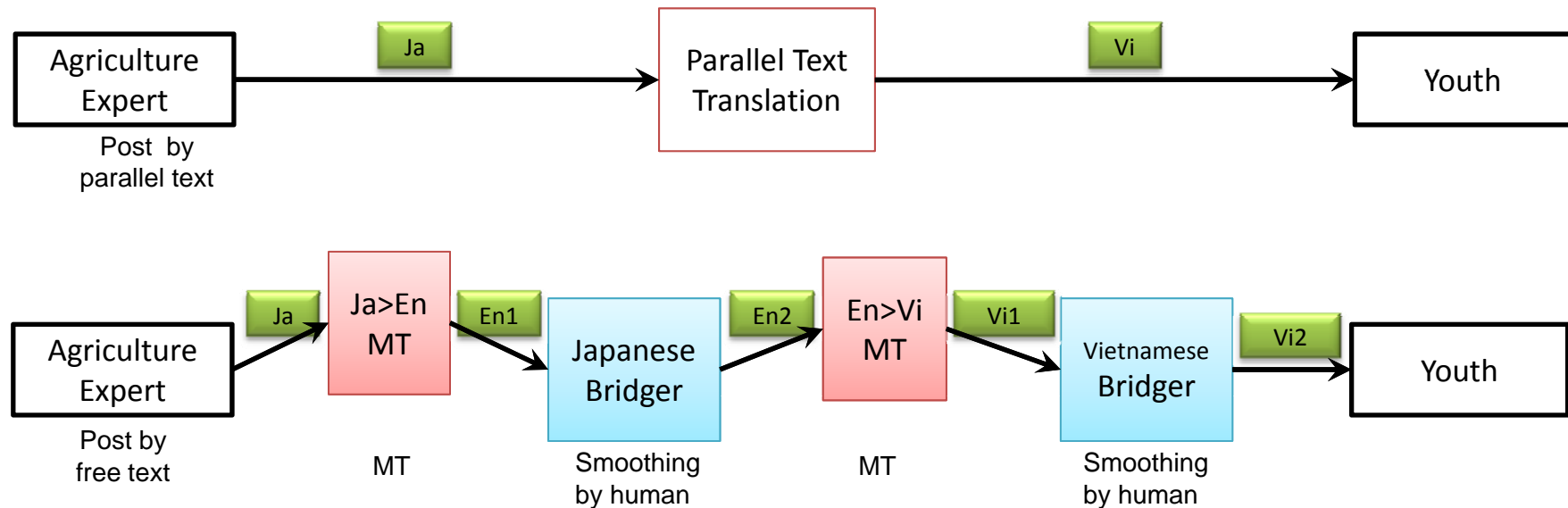
- There are three(3) language barriers in YMC:
  - Multilingual barrier: Japanese and Vietnamese
  - Expert/Non-expert barrier
  - Youth/Non-youth barrier
- A role called “Bridgers” was introduced to bridge these language barriers.

# Translation pipeline

## Question post by Youth



## Answer post by Non Youth



# Workflow in Expert Answer Post

User	Pre-Message Status	Post-Message Status	Task
Expert	<b>Start</b> Red	Brown	- Posting Answer Message in Japanese with Parallel Text and/or Free Text
Japanese Bridger	Brown	Yellow	- Smoothing of English MT in order to get good en-vi MT - Changing Status to Yellow - Registration of new words to dictionary service
Vietnamese Bridger	Yellow	Green <b>Finish</b>	- Smoothing of Vietnamese MT to be understood by Youth. - Changing Status to Green

\* Youths can see their messages only when they are in Green Status.

\*\* This workflow focus on answer text and doesn't describe additions of photos and recipe cards.



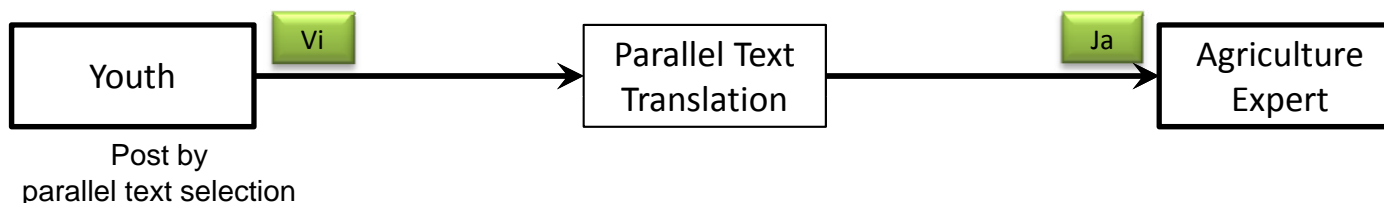
### [Step 1] Category selection

- Youth chooses its question category up to 3 depths from YMC Youth Categories.

### [Step 2] Question Parallel Text selection

- Each Question Parallel Text maps to 1+ YMC Category(s.)
- Youth compose Question text message by combining up to 3 Answer Parallel Texts. Some parallel texts are incomplete sentence(a part of sentence.)

#### Question post by Youth

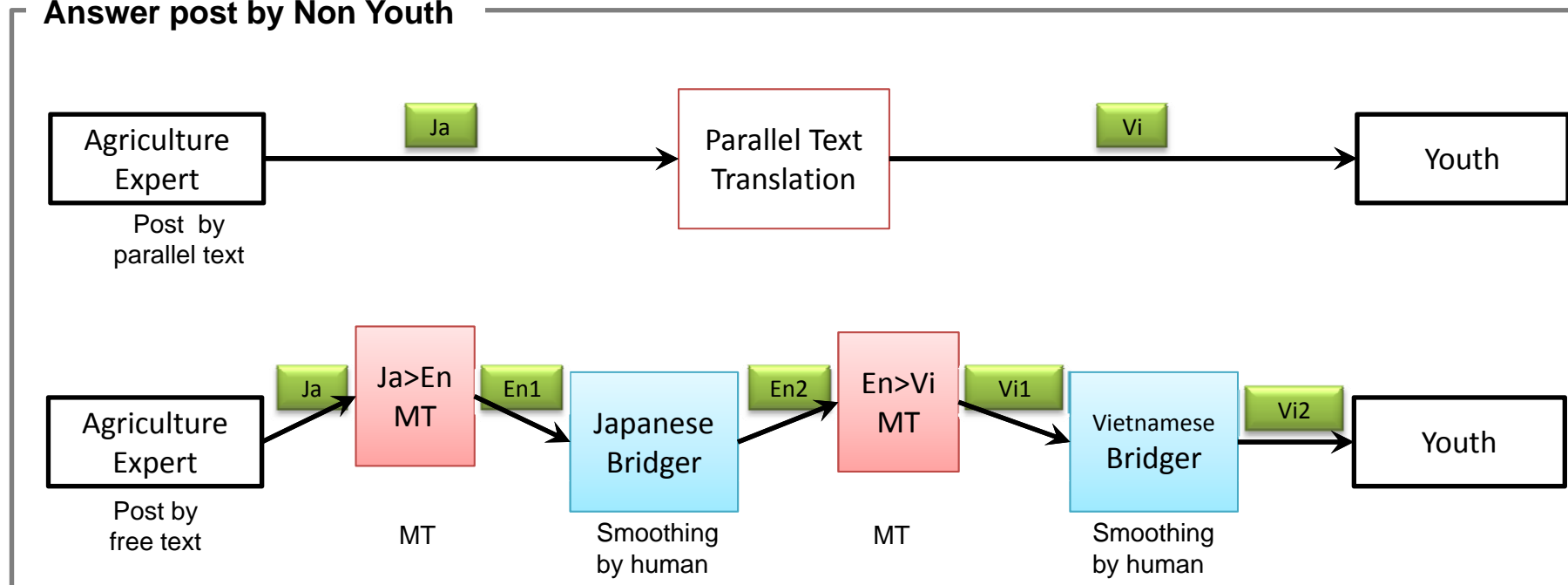




# Expert Answer Post

Workflow should be defined for “Free text” translation.

## Answer post by Non Youth



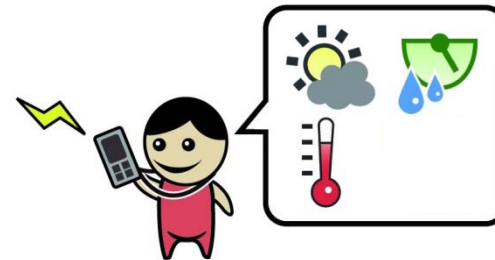
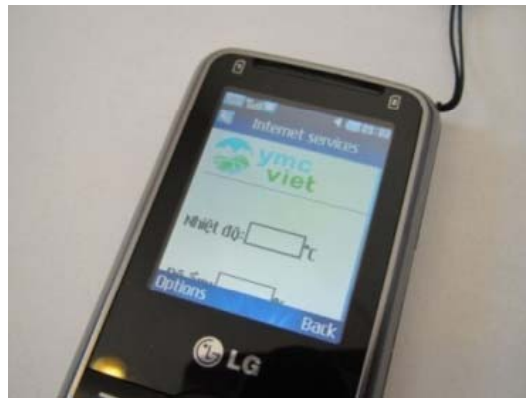


# Issue: Human resource handling for multilingual collaboration

- Language resources were edited by contributors with different properties:
  - Multilinguality : one property or more of the followings:  
{ja, en, vi, ja→en, en→ja, en→vi, vi→en, ja→vi, vi→ja}
  - Expertise level:  
{Expert, a person with some expertise, a person without any expertise}
  - IT skill level
- Social communication issues should be considered in the editing process in addition to the logical workflow issues.
  - Non-experts are likely to prevent from commenting to Experts (authorities.)



- Youth posts field information as follows:  
[Post by mobile phone everyday]  
Temperature, humidity, and weather



[Post by PC twice a week]

Rice height, leaf color, photos of rice & field





- Though Field Data is precious resources in agriculture, it exists in the closed YMC System DB.
- Visualization of Field Data for Non Youth users should be improved.