Turning News Texts into Business Sentiment

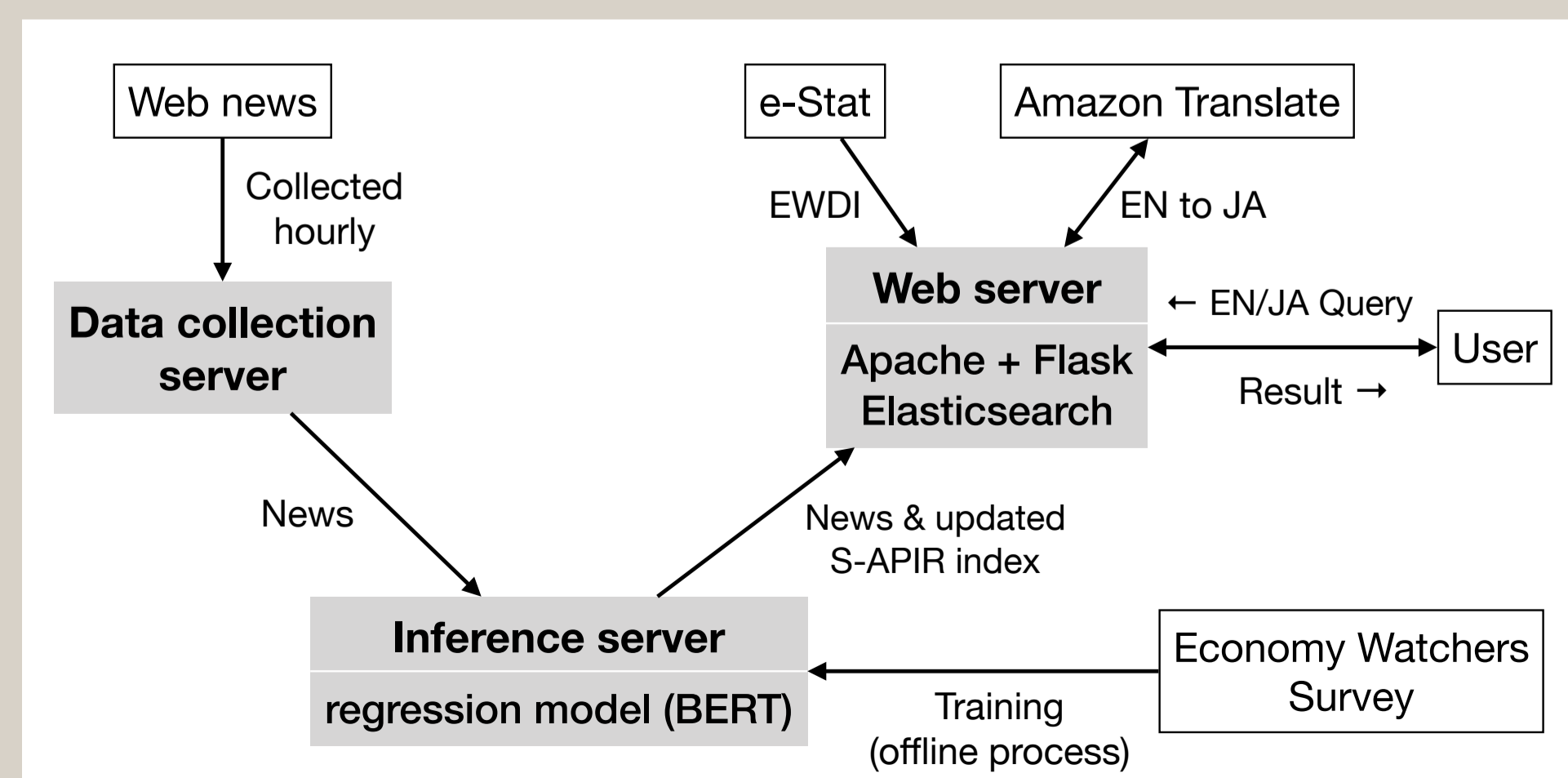## Kazuhiro Seki at Konan University, Japan

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What is "business sentiment"?

‣ **Overall impression of the economical situation**
  ‣ Generally measured by **periodical surveys** on business conditions and expectations of, e.g., business managers
‣ Important indicator in making plans and actions for **governmental/monetary policies** and **industrial production**
‣ **Different from market sentiment** which is an overall attitude of investors to the market or a particular company

Motivations

‣ Existing business sentiment indices (BSI's) rely on **monthly or quarterly** surveys and hence **costly to conduct** and **lack timeliness,** which is not ideal when the economic situation rapidly changes due to unexpected events, e.g., COVID-19
‣ Our previous work (Seki+ 2022) showed that **news paper articles can be used to predict BSI surprisingly accurately** (R=0.937)
‣ Develop a demonstration system which provides **near-realtime business sentiment** (called **S-APIR index**) **fully automatically** from crawled web news articles

System overview

Main components

‣ Data collection server collects Nikkei news articles and scrapes the contents
‣ Inference server predicts business sentiment scores for the contents by a regression model (fine-tuned BERT), aggregated into the S-APIR index
‣ Web server provides the computed S-APIR index and **also allows the user to temporally analyze the impact of a given keyword on the index** (Seki+ 2022)

Example

‣ The line plot shows the **S-APIR index** and an existing **survey-based BSI** (**observe their similarity**)
  ‣ The bar plot shows the result of a query "hotel", which tells us the situation is recovering for the hotel business in the last three months
‣ In contrast, one could see "restaurant" business is still struggling (not shown due to the space limitation), longing for governmental support
‣ Policymakers could allocate their limited budget to support such businesses

Reference

K. Seki, Y. Ikuta, and Y. Matsubayashi. News-based Business Sentiment and its Properties as an Economic Index. *IP&M*, vol. 59, no. 2, 2022.