Motivation

- WCMS are used extensively to manage web content, but finding a piece of information can be difficult and normally requires a lot of reading.
- Adaptation systems are developed to adapt web content so that they are easier to read. They work well in closed environments where the web content is predictable and centrally managed.
- Adaptation in open environments is hard to achieve mainly because of the lack of an open knowledge base.
- Semantic web technologies open the gate by publishing well formatted information of resources and their relationships in the linked data project.
- An adaptation service for WCMS in an open environment driven by semantics has not been tried.

Implementation

The design is implemented in the Semantically Enhanced Open Wiki (SEOW) system:
- Content Repository - A MediaWiki with necessary plug-ins.
- Knowledge Repository - A REST web service that queries linked data.
- Intelligence Component - A REST web service that has rules and makes adaptation decisions.

Evaluation

User tests were run on 8 users, each finishing 6 information retrieval tasks on the SEOW system.
An example task is “Among all the airlines that use Dublin Airport as hub, find the one with smallest fleet size.” Users are expected to tag “Airline” tag on “Dublin Airport” page to have all airlines highlighted, and go to each airline’s page to find its fleet size.

According to the survey, all test users found the system easy to use and helpful in answering the questions. The tools also increased the accuracy rate of the answers by 16.66%.

Conclusion

- The proposed design is feasible and flexible.
- SEOW system offers positive user experience.
- SEOW has great potential:
  - When linked data gets more knowledge, adaptation quality gets better without changing the other services;
  - If the rules gets changed intelligence components, adaptation results get changed accordingly;
  - New content being added to the WCMS can be adapted without changing the other services.