ZBW Labs: Publish Projects as Linked Data

Joachim Neubert
ZBW – Leibniz Information
Centre for Economics,
Germany
j.neubert@zbw.eu

Keywords: project repository; semantic publishing; linked data; Drupal; HTML5; RDFa1.1; doap; dcterms; schema.org

ZBW Labs¹ gives insight into software developments of the German National Library of Economics (ZBW). Maintained by the IIPT (Innovative Information Systems and Publishing Technologies) department of the ZBW, it presents early prototypes as well as case studies in data visualization or full-fledged beta applications, which are not yet in full production state.

The use of a content management system (CMS) was primarily driven by the need for better collaborative editing of the German/English content of the web site, for better ways of user interaction, such as on-page-comments, and for improved internal and external linking.

Yet, we also wanted to bring the labs projects into the Web of Data—especially as some of these projects are Linked Data projects themselves. That implied providing an URI for each project, and offering additional (machine-readable, RDF) information under this URI. The



Deutsch

Publishing Technologies Visualizing Cultural Heightage Linked Open Data Web 2.0 Automatic Indexing Repositories of Access Document analysis Search Username * Password * Create new account

Web Services for Economics

asset
Asset-backed security
Asset
Asset market --- Financi
Asset market approach
Asset pricing --- Capital

As the publisher of the STW Thesaurus for Economics, ZBW provides experimental thesaurus web services for use by humans and by machines. In the first instance these services are designed to support query expansion in the context of information retrieval applications. Parts of the delivered data

originate from datasets which were created by third parties and shared through open licenses.

The services follow the REST design principles. All services uniformly support the HTTP GET method.

Project Details

Name: Web Services for Economics

Short Description: RESTful Semantic Web based terminology services

Homepage: http://zbw.eu/beta/econ-ws

Developer: Joachim Neubert Categories: API Linked Open Data

Created: 2009-03 Project Status: Beta



FIG. 1. HTML5/RDFa example page

Request new password

Log in

¹ http://zbw.eu/labs

information ranges from project name and description, start and end dates, developers and funders (if any), to project status and category. Linking to other projects as well as to blog entries about certain aspects or experiences was essential. (Fig. 1) Linking out the other Linked Data entities (e.g., DBpedia) is still on the agenda.

To achieve these goals, the new labs site was built on Drupal 7. As a modern content management system, Drupal supports blogging, comments and other forms of user interaction, versioning and an editorial workflow. But most importantly, it allows definition of custom content types, to which newly defined fields can be attached (so project descriptions can have different fields from blog entries). Moreover, it is a Drupal 7 core functionality to support the creation of RDF. Classes can be assigned to the content types, and data and object properties to the fields. Drupal embeds this data into the generated HTML (in our case HTML5, produced by the Zen theme, and RDFa 1.1 compliant markup). As RDF vocabularies, dcterms, doap (description of a project), and schema.org were used. RDFa itself as well as the Drupal RDF mapping interface allow lists of attributes, which can be mixed from different vocabularies. This facilitated the semi-redundant combination of precise terms from the appropriate special vocabulary together with the more general dcterms properties and search-engine-friendly schema.org attributes.

These definitions can be accomplished by site builders in a very simple through administrative user interface (Fig. 2). Without the need of programming skills, or manipulating template files, the appropriate markup produced and inserted by Drupal "theming" subsystem. For the default entities of the Drupal system - articles, vocabularies and terms, users, comments - reasonable default mappings to skos,

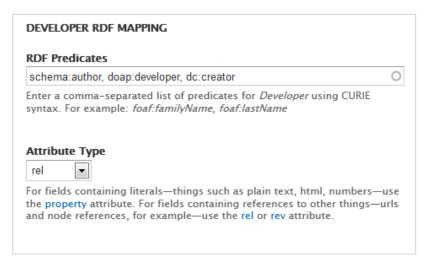


FIG. 2. Assignment of multiple RDF mappings in the Drupal 7 admin user interface

dcterms, foaf and scioc classes and properties are already defined.

To achieve Linked-Data-compliant "cool" URIs however took additional effort – especially because multi-lingual content had to be addressed. Another shortcoming showed up for nested field structures within one page, which are currently not supported by Drupal RDF and required custom theming functions. Also, RDFa markup for multiple custom entities within a given context (which for example would be necessary for the modeling of OAI-ORE aggregations) isn't provided yet.

The overall experience however showed that semantically enhanced publishing has become available through a mainstream CMS tool such as Drupal, which hopefully will be enhanced with the upcoming versions.