

unspscOWL

An OWL ontology based on the UNSPSC products and services classification



By applying the GenTax algorithm, we have derived a consistent OWL ontology from the United Nations Standard Products and Services Classification (UNSPSC).

Project Web site: <http://www.heppnetz.de/projects/unspscowl/>

myOntology

Open ontology environment for Semantic Web-based e-commerce



One paramount problem for e-commerce solutions based on Semantic Web technology is the lack of high-quality ontologies for products and services, in particular such that are up-to-date. In the myOntology project, we use the infrastructure and culture of Wikis as an ontology workbench that fosters true collaborative, community-driven ontology creation and maintenance in the products and services domain, and establish a standardized framework for ontology-based products and services description for E-Commerce applications.

Project Web site: <http://www.myontology.org/>

OntoGame

Weaving the Semantic Web by online games



Despite significant advancement in technology and tools, building ontologies, annotating data, and aligning multiple ontologies remain tasks that highly depend on human intelligence, both as a source of domain expertise and for making conceptual choices. This means that people need to contribute time, and sometimes other resources, to this endeavor.

As a novel solution, we have proposed to masquerade core tasks of weaving the Semantic Web behind on-line, multi-player game scenarios, in order to create proper incentives for humans to contribute. Doing so, we adopt the findings from the already famous "games with a purpose" by Louis von Ahn, who has shown that presenting a useful task, which requires human intelligence, in the form of an on-line game can motivate a large amount of people to work heavily on this task, and this for free.

Project Web site: <http://www.ontogame.org/>

myClassify

Open-source API for the classification of product data using machine-learning



A recurring task in managing catalogs and other data of Web offerings is the proper classification of individual products according to a given hierarchy. myClassify is an open-source API that implements standard machine-learning algorithms for the classification of product descriptions.

Project Web site: <http://www.heppnetz.de/projects/myclassify/>

SBPM

Semantic Business Process Management

There is now a renewed and growing interest in exploiting ontologies, of varying expressiveness and focus, for advancing the state of the art in business process management, in particular in ERP-centric IT landscapes. The term "Semantic Business Process Management" has been suggested for the described branch of research in an early 2005 paper, which is now frequently cited as the first description of the overall vision. A flagship activity in the field is the European research project "SUPER", with more than a dozen premier industrial and academic partners, among them SAP, IDS Scheer, and IBM.

Project Web site: <http://www.heppnetz.de/projects/sbpm/>

OntoNaviERP

Ontology-supported navigation in ERP software documentation



The documentation of Enterprise Resource Planning (ERP) systems is usually (1) extremely large and (2) combines various views from the business and the technical implementation perspective. Also, a very specific vocabulary has evolved, in particular in the SAP domain (e.g. SAP Solution Maps or SAP software module names). This vocabulary is not clearly mapped to business management terminology and concepts. In this project, we evaluate the use of ontologies and automatic annotation of such large HTML software documentation in order to improve the usability and accessibility, namely of ERP help files.

Project Web site: <http://www.heppnetz.de/projects/ontonavi/>

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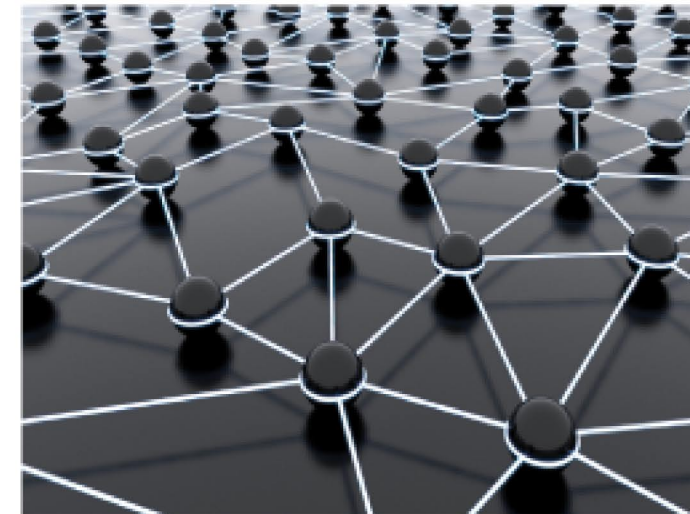
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ABOUT

We are a young team of researchers with backgrounds in information systems, conceptual modeling, economics, computer science, and related disciplines. In our research, we work on the theoretical and practical challenges of using the World Wide Web for facilitating the exchange of tangible and intangible goods between economic actors, and economic activity in general. Our core research interest is employing Semantic Web technology for E-Procurement and Business Process Management.

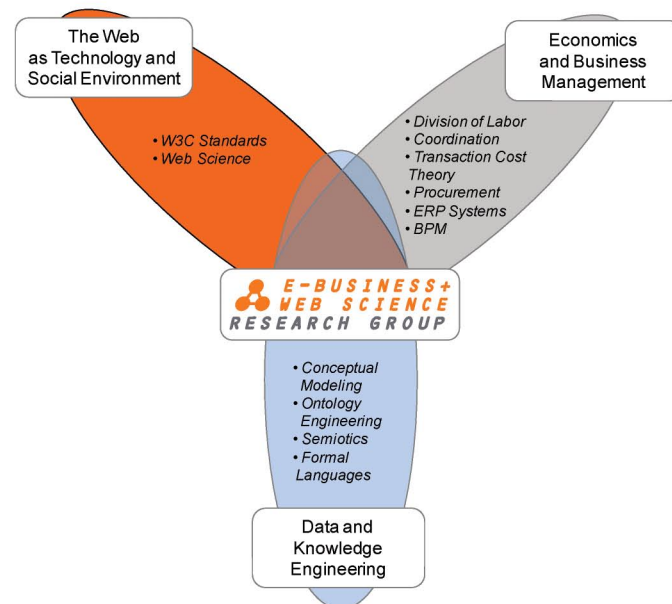
RESEARCH

We are addressing the theoretical and practical problems of using the Web for automating the coordination of economic activity.

Such is of utmost importance for highly developed economies. Why that? Simply because our wealth is largely based on the ability to coordinate production processes with a very high degree of division of labor.

We owe to Adam Smith the insight that breaking up production into small tasks, and allowing people to focus on the execution of but a few of them, increases overall productivity. Ever since that discovery, however, we have been struggling with the effort for coordinating the resulting distribution of work – we have to search for suitable partners, select the best ones, negotiate, set-up agreements, supervise and enforce. The more we gain from specialization and division of labor, the more resources are needed to align activities. In other words, there is a point in which the effort for coordinating complex workflows is eating up the gains from specialization.

Our work takes place at the intersection of three fields:



Web Science The Web is a socio-technical environment of unprecedented growth and dynamics. Introduced to the public in 1992 only, it has fundamentally transformed the way humans exchange information in less than two decades. Web Science is the attempt to establish a research field that aims at understanding the technical problems of the Web, the social interaction, and the mutual interplay between those two spheres on the Web.

Data and Knowledge Engineering deals with the design and maintenance of structures and models so that we can use computer systems to solve real-world problems, and so that communication between multiple computers and between computers and human users is possible. When computers were mostly isolated machines, modeling the data structures and the behavior of software was a lesser issue. Nowadays, however, data and processes must be represented in a way that facilitates global reuse of data and functionality over the Web. This makes finding a suitable representation much more difficult. A current field of research is ontology engineering and ontological analysis of information systems.

Economics is about analyzing the principles of the exchange of resources between independent agents, the efficient distribution of resources, and the coordination of economic activity in general. A major field of interest for us is Transaction Cost Economics.

TECHNOLOGY AND PARADIGMS

- Always build prototypes
- Release source code and data
- Open & Agile: Wikis whenever feasible
- Pragmatic: Don't use immature technology for operational purposes



TEACHING

Our group is involved in the Bachelor and Master degree programs in Management and Organization Science (WOW) and in Information Systems (WIINF), and supervises PhD degree studies in the field of E-Business and Web Science.

For current information, please check <http://www.unibw.de/ebusiness/teaching/>



PROJECTS

GoodRelations

An ontology for linking product descriptions and business entities on the Web



A promising application domain for Semantic Web technology is the annotation of products and services offerings on the Web so that consumers and enterprises can search for suitable suppliers using products and services ontologies. While there has been substantial progress in developing ontologies for types of products and services, namely eClassOWL, this alone does not provide the representational means required for e-commerce on the Semantic Web. Particularly missing is an ontology that allows describing the relationships between Web resources and offerings made by means of those Web resources.

The GoodRelations ontology provides the vocabulary for annotating e-commerce offerings (1) to sell, lease, repair, dispose, and maintain commodity products and (2) to provide commodity services. GoodRelations allows describing the relationship between (1) Web resources, (2) offerings made by those Web resources, (3) legal entities, (4) prices, (5) terms and conditions, and the aforementioned ontologies for products and services (6).

Project Web site: <http://purl.org/goodrelations/>

eClassOWL

The first real ontology for product and services.



Products and services categorization standards (PSCS), like UNSPSC, eCl@ss, eOTD, or the RosettaNet Technical Dictionary (RNTD) form a valuable set of concepts from the product and services domain and reflect some degree of consensus. They are thus a promising foundation for the creation of products and services ontologies. Existing approaches for this task, however, do neither properly reflect the specific semantics of the respective categorization standards, nor do they sufficiently address the high versioning dynamics due to product innovation. In this project we are developing a comprehensive approach for the proper reuse of such standards in product ontologies and are continuously releasing current OWL DLP/Lite versions of eCl@ss.

Project Web site: <http://www.heppnetz.de/projects/eclassowl/>