"Knowledge Portals"

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1 Portals

Internet/intranet portals are websites that structure access to large amounts of previously unstructured information in the inter- or intranet. Thereby, they frequently include additional services, such as news, discussion lists or transaction services. Portals are devised as entry points to a relevant space of information and service. Important instantiations of general portals are, e.g., enterprise information portals that “are applications that enable companies to unlock internally and externally stored information, and provide users a single gateway to personalized information needed to make informed business decisions.” “Enterprise information portals are “… an amalgamation of software applications that consolidate, manage, analyze and distributed information across and outside of an enterprise (including Business Intelligence, Content Management, Data Warehouse & Mart and Data Management applications).” (cf. [Shilakes, Tylman, 1998]).

Current trends in industry reflect this concept by offering integrated access to, e.g., Enterprise Resource Planning (ERP) systems.

2 Knowledge Portals

Knowledge portals are portals that focus specifically on the production, acquisition, transmission or the management of knowledge. Notwithstanding few exceptions, tackling only one restricted domain of interest, knowledge portals tend to stress knowledge. Notwithstanding few exceptions, tackling only one production, acquisition, transmission or the management of systems. The knowledge life cycle that needs to be maintained within the knowledge portal comprises the following steps:

1. Creation,
2. Import / Gathering,
3. Capture,
4. Retrieval / Access, and the
5. Use of knowledge [Staab et al., 2001a].

The current drawback of the more sophisticated of these systems however is that they do not yet come with industrial strength user interfaces and that they have not yet covered the complete life cycle of knowledge at the knowledge portal, e.g., abstracting for research purposes from important operational issues such as content management.

3 Knowledge Life Cycle

The main challenge here lies in providing an integrated environment for the complete knowledge life cycle. The reasons are that: (i), knowledge creation typically implies the retrieval and use of already available knowledge. (ii), High quality interaction with the portal depends on knowledge being captured according to context descriptions within the portal, hence the tight integration of the creation and import steps with the capturing step facilitates its subsequent use.

4 Infrastructure: Semantic Web

State-of-the-art knowledge portals are build on the following pillars:

- Web access
- Metadata
- Standards

Web access ensures global reachability and facilitates access from heterogeneous computing environments. Metadata are generally used in order to improve the quality of retrieval. And, finally, standards are a prerequisite in order to secure the investment in infrastructure for the future (at least for the foreseeable time span). Taken together, these three lead eventually to a Semantic Web infrastructure for knowledge portals. W3C standards, viz. Resource Description Framework (RDF) and RDF Schema (RDFS), may serve as the metadata and the ontology layer, respectively [Staab et al., 2001b].
5 Applications: Knowledge Management and E-Learning

Knowledge Management. The goal of knowledge management in an organization is to improve the capacity of individuals to act successfully towards the goals of the organization by better exploitation of the information resources of the organization and its individuals. For this purpose, the ideal situation is the bundling and structuring of information at a central point, such that knowledge is conveniently accessible as needed by the current course of work. Knowledge portals offer themselves as a straightforward means for making core knowledge management systems, such as organizational memories, available in the intranet [Abecker et al., 1998].

E-Learning. E-Learning in organizations is pursued for objectives that converge with the ones of knowledge management [Maurer, Sapper, 2001]. "E-Learning is just-in-time education integrated with high velocity value chains. It is the delivery of individualized, comprehensive, dynamic learning content in real time, aiding the development of communities of knowledge, linking learners and practitioners with experts" [Drucker, 2000]. Thus, the exploitation of knowledge portal techniques for making learning repositories more conveniently accessible appears as a sine qua non.

6 Summary

"The future is Enterprise Knowledge Portals, not Enterprise Information Portals." [Firestone, 2001]. Artificial Intelligence has a lot to contribute when knowledge is sought rather than sheer information. Ontologies, intelligent user interfaces, knowledge acquisition, reasoning – they all may play a pivotal role in the knowledge portals of the future. Still, many practical and research questions remain open, e.g., the syndication of federated knowledge portals [Edutella].

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Literature