The NetAcademy
A platform for academic knowledge management

Salome Schmid-Isler
Institute for Media and Communications Management
University of St. Gallen

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1 The NetAcademy, overview

1.1 Competence of the NetAcademy

The NetAcademy [www.netacademy.org] is an open internet based platform which accumulates, reviews, structures and publishes academic research from the scientific community worldwide. The platform – called the NetAcademy universe – clusters various independent NetAcademy units – each called an own NetAcademy instance – dedicated to a specific research area. Such a NetAcademy instance structures its contents by means of one or several out of five NetAcademy modules. The available modules are:

- Classic knowledge management (the standard module),
- Project management,
- E-Learning,
- Academic journal publishing
- Conference management

1.2 Origin, objectives and management of the NetAcademy

The concept of the NA platform has been developed by Beat F. Schmid, professor of information management (IWI) of the University of St. Gallen, Switzerland, and is continuously developed by his Institute for Media and Communications Management (MCM) of the University of St. Gallen, founded 1997. His objectives were (1) to publish and network his institute’s research in the field of the new media, and (2) to hereby investigate in general the potential of such platforms regarding the benefit for global academic research, knowledge management, and e-learning. The NetAcademy is a long-term project meant to develop continuously.

The strategy of the NetAcademy stakeholders is to build up a common open source online handbook representing worldwide academic research, and to achieve this by

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1 For further questions and availability please contact: informationobjects AG, St. Gallen, Switzerland [www.informationobjects.com]
cooperation and alignment with similar networks of scientific communities. Their objective is to structure the different contents in an interdisciplinary manner, maintaining thereby the encompassing semantic and the editorial characteristics of each research community.

The NetAcademy is managed by the Institute for Media and Communications Management (MCM) of the University of St. Gallen; it is hosted by the informationobjects AG in St. Gallen; it is a non-profit project mainly sponsored by the MCM institute and by commercial cooperation partners such as the Bertelsmann foundation and the Heinz Nixdorf foundation.

1.3 Some figures about the NetAcademy

NetAcademy universe was launched in March 1997 with 4 different research communities. In 2003 it hosts 8 NetAcademy instances, about

- E-Commerce [www.businessmedia.org] (community founded in 1989),
- Knowledge Management [www.knowledgemedia.org] (community founded in 1994),
- Media Management [www.mediamangement.org] (community founded in 1997),
- Communication Management [www.communicationsmgt.org] (community founded in 1999),
- The International Journal on Media Management [www.mediajournal.org] (edition since 1999),
- The NetAcademy Press [www.netacademypress.org] (editions since 2000),
- Digital product design [www.e-media-design.org] (community founded in 1999, online since 2002)
- Intelligent software [www.intelligentmedia.org] (community founded in 2002),

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2 Contact: [na.editors@netacademy.org]
3 Compare with footnote 1. Contact: [info@informationobjects.com]
Access: The visitors’ statistics show a monthly average of 500'000 hits, 250'000 page (html) downloads and 52'000 visits. Regions: About 50% of the visitors access from US domains (.edu, .gov, .com), 20% from numeric (academic) IP addresses, 10% from network providers (inktomisearch, googlebot, etc.), the rest mainly from European countries (.ch, .de., uk., nl., ...).

1.4 Policy, technical overview and participation conditions of the NetAcademy

The Netacademy language is English although quite some of the downloadable documents are written in German. Download is for free (E-Mail registration requested) except for some of the articles belonging to the online journals (subscription requested). The NetAcademy pursues academic goals, displays no commercials and keeps the data of its registered users strictly private.

The NetAcademy was based on Lotus Notes technology 1997-2001. Since its complete relaunch in 2002, the platform uses PHP4, HTML and CSS2.0 for the web front end, SML / XHTML for content management and the exchange of meta data between the different NetAcademy instances, and is based on the relational data base solution MySQL for data keeping; the exchange server relies on Java technology. Editing and administration is managed 100% browser based. The NetAcademy opens its source code for the Open Source Community for a broad further development.

How to participate? Each interested community with a sound scientific background (university, research institute, corporate university and similar) is invited to join a NetAcademy community or to open its own NetAcademy instance. Contact [salome.schmid-isler@unisg.ch] or informationobjects AG St. Gallen.

2 The NetAcademy: A close-up view

The NetAcademy [www.netacademy.org] was intended, from its inception (online launch 1997), to pursue two objectives:
To contribute from a technical point of view to the development of the new information and communication technology (ICT), and

To contribute a successful content management system respectively a knowledge management system to serve the requirements of today’s ICT.

2.1 The technical point of view

The Internet technology provides a new communication and information storage system, and the NetAcademy platform organizes an interaction space based thereon. The NetAcademy fosters academic communication and cooperation, with the goal to eventually create a living handbook on scientific research, directed by a common logic and intelligible protocol [9].

The NetAcademy is an internet based network for distributed online research communities [10]. Each instance manages its own research area, some with a narrow focus, some with a large one, some in a rather hierarchical, some in a more open manner, but all using the same templates for content management. The respective communities either gather in a NA instance (i.e. a domain name), or they subdivide into a cluster of associated, more specialized research communities, whereof they may eventually split and open a new NA instance. All instances can be accessed directly or coming from the NetAcademy homepage (www.netacademy.org).

The NetAcademy has a federated structure [11]. All community instances, large and small, are connected with the exchange server (the NA homepage, called NA Universe) and thereby with each other, in order to align their findings with the holistic research progress.

A NetAcademy instance can be built on modules, be it just one, or be it a cluster of different modules. The platform offers a range of compatible pre-designed modules for different academic purposes.
2.1.1 The NetAcademy’s federated system

The NetAcademy is a federation of autonomous NetAcademy instances, each of which pursues an own field of research interest. Each NetAcademy instance is managed independently. It consists in one or in a choice of service modules which can be clustered according to individual requirements, and can be installed, edited and hosted by any (distributed) academic research group at a place they prefer.

Every NetAcademy instance is connected with the NetAcademy exchange server (the NetAcademy homepage domain) which takes up new content of each NA instance, replicates it in 24 hours periods, and instills it to the other NA instances (about the according knowledge management, see section 2.2.). This federated system guarantees each NA instance an autonomy but offers to combine its content – as entity or in parts, which can be chosen – with other NetAcademy instances. Each NA instance establishes its content according to its own organizational principles. Each NA instance manages its proper quality standards, in full transparency, thereby

![Diagram of the federated system with the NA Universe, the NA instances, and a NA cluster]
enabling a proper quality alignment of content across all NetAcademy instances (about the problems arising of this alignment, see 2.3).

2.1.2 The NetAcademy's modular architecture

The NetAcademy's modular architecture enables any organization to establish its own NetAcademy instance by assorting its profile out of a wide range of ready made components. The types of platforms for scientific knowledge management are

- NA classic instance, a module for institutes, competence centers, for presentation of scientific results (currently there are 6 active classic modules),
- NA journal instance, a module for learned journal online publishing (currently there are 2 active journal modules),
- NA project management, a module for controlling and communication of academic projects, e.g. EU projects, their access is restricted (currently there are 2 active project management modules),
- NA conference, a module for online organization of conferences and workshops (currently, there is only a prototype),
- NA eLearning, a module for e-based learning and teaching (currently there are 2 active classic modules).

Each NetAcademy instance is built around a starter module which is the classic module. This module manages logic by the semantic triangle (see section 2.2.2.).

![Fig. 2: The current modules, at disposal to be combined in one NA instance](image-url)
2.1.3 Lessons learned from the NetAcademy's technology

The lessons learned about how to develop an internet based platform for the benefit of the scientific community worldwide are, in a nutshell:

- Proprietary technologies must be avoided, otherwise the aspired alignment of research results and processes is impeded. (Although we highly estimated the security offered by Lotus Notes technology, we went the way to shareware, to open source.)

- Access should basically be for free, and administration / editing of contents should be possible 100% browser based, otherwise the mostly highly mobile stakeholders become annoyed.

- Sharing and cooperating is the motto, not competition.

2.2 The content management point of view

Today we look back at millennia of experience since knowledge was entrusted to writing, and at centuries since we have it disseminated by books and then by journals. Just about a decade went by with online publishing experience. Today, knowledge literally explodes into the internet, though terribly mixed with all sorts of digital genres (advertisements, clip art, e-mail, search services and other). Now we have the information overload – basically not more information, but more information available at the same time, unstructured. As, in the past, libraries and information management systems had to learn how to organize their contents in the real world, we are to organize the same in the realm of the new media. Although in the last couple of years many endeavors have been undertaken to create categorization, the problem about “how to ascertain relevance of online information” is still not solved in a satisfactory way.

The NetAcademy proposes, for knowledge management,

1. The classic academic logic and processing of contents,

2. The “3R-requirements” for documents/services (see below section), and
(3) The semantic triangle for the coherence between originator, product/document and meta classification (theme).

2.2.1 Three predominant requirements for quality

We can label the well-known preeminent problems about quality in online knowledge management as “the 3R”-requirements [12], which are:

- **Retrieval: How can information be found?** Search engines and catalogs find lots of digitized information objects, but which one is the required one, the one which is useful? Libraries, information management, have lead a way to targeted retrieval in the real (paper based) world. The intellectual editorial work which provided semantics there cannot be easily deferred to software solutions.

- **Rating: What makes information trustworthy?** Retrieved data generally have no spanning and authoritative identification regarding quality, authenticity, or up-to-dateness of a document’s content. How to ascertain that the document found offers authentic information, is “true” according to academic standards? Quality criteria to artifacts or services are bestowed by communities. On the internet, mostly the community which should sustain the retrieved information is not in reach.

- **Reliability: Information must remain citable.** Citation of information found on the internet is still not as trustworthy as it should be, because knowing the access date of a source does not ensure the retrieved data will persist to be accessible there, nor is ensured that the data will not suffer from corruption. The citation must be, and remain, checkable by reviewers. Although internet archive sites, as e.g. [www.archive.org], pursue a worthily task, they conserve only a part of data, and parts of time span.

The NetAcademy’s answer regarding retrieval profits from a thematically confined information repository. The focus of each NA instance is quite clear, accordingly the
types of retrieved documents becomes obvious. **Rating** is a refined and well displayed characteristic of the platform, it ranges from international double blind peer review processes and a back-up of renowned editorial board members to open community internal reviews. The thus different quality processes and the editorial responsibilities are disclosed in the respective NA instances and documents. **Reliability** is paid considerable attention though the answer is not going beyond responsible archiving activities and networking with other online repositories (some NA instances are networked with organizations providing additional abstract indexes and web based intermediary services). In the case of the journal modules, parallel paper based publishing is a valid solution.

Still, the “the 3R”-requirements deal with selected points of quality. They basically refer to quality of documents (or services). But such are the produce of a community, they are embedded in the communication and transaction processes which also include the roles of producers / originators and the logic of the context, i.e. terminology and understanding – quality not as attribute for itself, but quality as a declaration within a context. The logic and protocol which rules interaction in a community is the encompassing guideline, the “3R” must be combined with the semantic relation between originator, product, and meta classification (see section on semantic triangle).

### 2.2.2 The semantic triangle

Knowledge management in the NetAcademy Universe is rooted in the inherent protocol which steers all scientific research (see introduction and section 2.3.). It is however desirable that IT sustains this protocol as much as possible. Therefore, in each NA instance, a logic triangle is rooted, referring to the basic principle that knowledge is

1. externalized in a document or similar, which has
(2) an author who is responsible of the content described in the document, and
(3) a meta description for both which classifies the content into an encompassing reference system.

(1) to (3) is modeled in coherent triangle which is prescribed by the NA classic module templates, furnishing the semantics between publication / publication database, author / expert database, research field / glossary (keyword) database. The triangle reflects a triangle of most often posed questions in academic research, see figure below:

![Fig. 3: The logic triangle rooted in the NA’s classic module](image)

Besides this triangle structure, the classic module of course adds further services such as conference calendar, news, contact, search, submit, vote and discussion sections.

Another issue of knowledge management is the alignment of content from different communities for display in the entire NA Universe. We have already referred to the exchange server which enlarges the knowledge body of every NA instance by instilling externally created semantic triangles (i.e. keywords, authors, publications). The challenge here is to avoid misunderstandings and chaos, to avoid the www’s information overload of unstructured information. Currently, the platform aligns
additional information with the one which is already there just by remaining identifiable as the result of the research of community X – which is basically the traditional encyclopedic protocol. The below example shows the outcome of a search regarding the definition of the term “information”. The catalogue offers all definitions generated by the research community at hand (which in our example is the NA instance on Media Management) and also offers the definitions about “information” available from all the other communities of the NA Universe (see fig. below).

![Fig. 4: Alignment of internal and external keyword definitions. Example keyword “information”. Left: Search within one instance. Right: Search the across all NA instances](image)

### 2.2.3 Lessons learned from the NetAcademy’s content management

The lessons learned about knowledge management in this platform are, in a nutshell:

- Quality is the produce of a community.
- A community is largely recognizable by its interaction protocol.
- Interaction protocols can be formalized.
- Knowledge of different communities can be aligned if their interaction protocol are formalized, by means of a meta protocol.
We see that communities recognize and develop their identity according to a common protocol of interaction and understand that identity seems to be created just as much by a common protocol (format, form) of interaction than by a common theme (content, topic).

3 References

3.1 Text references


By Schmid, Beat (Working paper, 1997)

By Rheingold, Howard (2000)
MIT Press, 2000

MIT Press, Cambridge Massachusetts 1995

By Goffman, Erving (1967)

By Lincke, David-Michael, Schubert, Petra (1998)

By Wittig, Dörte (1999)

By Schmid, Beat (2000):
3.2 Publications about the NetAcademy project

All below cited publications can be downloaded for free from the NetAcademy:


2002  **The Unique Selling Propositions of the NetAcademy**, by Schmid-Isler, Salome. Institute for Media and Communications Management, University of St. Gallen, December 2002


[www.netacademy.org/na_publications.html]
2002  Das Projekt NetAcademy on Media Management Schlussbericht der Phase 6 (Professionalisierung) zHd. der Stiftungen (Januar-Dezember 2001), by Schmid-Isler, Salome; Mierzejewska, Bozena I., April 1, 2002


2001  Building a Strong MBA Community - The Integration of Various Learning Modes on the NetAcademy Platform, .by Gerhard, Julia, in: The 20th ICDE World Conference, April 1-5, 2001

2001  Das Projekt NetAcademy on Media Management Schlussbericht der Phase 5 (Community Building) zHd. der Stiftungen (Januar-Dezember 2000), by Schmid-Isler, Salome; Wittig, Dörte, 1. April 2001

2000  Ein Glossar für die NetAcademy - Issue 2/1999, by Schmid, Beat F.; Eppler, Martin J.; Lechner, Ulrike; Schmid-Isler, Salome B.; Stanoevska-Slabeva, Katarina; Will, Markus; Zimmermann, Hans-Dieter Institute for Media and Communications Management, University of St. Gallen, June 2000


1999  The NetAcademy - Managing Internet Peer Review Process in a Multi-agent Framework, by Yu, Lei; Schmid, Beat F. International Joint Conference on Artificial

1999 A Conceptual Framework for Agent Oriented and Role Based Workflow Modelling, by Yu, Lei; Schmid, Beat F. Presented at the CaiSE Workshop on Agent Oriented Information Systems (AOIS’99) - Heidelberg, June 1999

1999 Structuring and Systemizing Knowledge - Realizing the Encyclopedia concept on Internet, by Ulrike Lechner, Salome Schmid-Isler, Katarina Stanoevska-Slabeva, presented at the IRMA Information Resources Management Association Conference "Information Technology in Libraries", Hershey, May 1999


1999 Web Assessment - Measuring the Effectiveness of Electronic Commerce Sites Going Beyond Traditional Marketing Paradigms, by Petra Schubert, Dorian Selz, presented at the 32th International Conference on Systems Sciences (HICSS ’99), Hawaii, Jan 5-8, 1999

1999 Logic for Media - The Computational Media Metaphor, by Schmid, Beat F.; Lechner, UlrikePresented at the 32th International Conference on Systems Sciences (HICSS ’99), Hawaii, Jan 5-8, 1999


1997 Konzeption, Architektur und prototypische Implementierung eines quantorbasierten elektronischen Produktdkatalogs in Java, by Siegfried Handschuh. Forschungsarbeit für die Universität St.Gallen, August 1997


1996 Enhancing numeric processing with semantics for World-Wide-Web based applications, by Christoph Kuhn, Lei Yu. Forschungsarbeit für das Kompetenzzentrum Enterprise Knowledge Medium, Institut für Wirtschaftsinformatik, 1996, erschienen in IM HSG/CCEKM/11, 01/97

3.3 Metadata (German / English)

3.3.1 Organisationsporträt

PROJEKT
The NetAcademy

ABKÜRZUNG
NetAcademy NA

ADRESSE KOMPLETT
NetAcademy, Institut für Medien- und Kommunikationsmanagement, MCM-HSG, Blumenbergplatz 9, 9000 Universität St. Gallen
Tel. 071-224 2297
Fax 071-224 27 71

na.editors@netacademy.org
salome.schmid-isler@netacademy.org

WEB SITES
www.netacademy.org
www.mcm.unisg.ch

STRATEGIE

Strategie der NetAcademy Entwickler ist es, mit ähnlichen Netzwerken akademischer Wissensgemeinschaften ein gemeinsames open source online Handbook der akademischen Forschung aufzubauen. Dabei sollen (anders als im WWW) die unterschiedlichen Inhalte semantisch und redaktionell so strukturiert werden, dass der Datenaustausch zunehmend widerspruchsfrei und sinnstiftend wird.

STRATEGY
It is the goal of the NetAcademy platform to align research and teaching in internet based communities. Members of such communities can be students, lecturers, tutors, researchers, managers and other experts which have a common interest in particular fields of knowledge and teaching.

It is the strategy of the NetAcademy developers to build, with other scientific communities, a joint network of excellence on the internet, thus to contribute to a global open source online handbook on academic knowledge. The challenge is to add the data semantics and editorial quality in such a way that merging content of different sources becomes ever more consistent and meaningful, not less (as it is the case in today’s www).

3.3.2 Personenporträt

- Schmid-Isler
- Salome
- Dr. phil., Projektleiterin NetAcademy am MCM Institut der Universität St. Gallen, Lehrbeauftragte der Universität St. Gallen
Institut für Medien- und Kommunikationsmanagement, MCM-HSG, Blumenbergplatz 9, 9000 Universität St. Gallen
Tel. 071-224 22 97 oder 01-796 16 61
Fax 071-224 27 71 oder 01-796 16 62
salome.schmid-isler@unisg.ch


CURRICULUM
Studied art history at the University of Zurich, dissertation in semiotics 1983 (Zurich). 1984-1995 working as journalist and as expert for the art insurance company Nordstern. Since 1990 lecturer in art history (University of St. Gallen), since 1996 research assistant at the University of St. Gallen (Institute for Information management), since 1997 project manager of the NetAcademy (Institute for Media and Communications Management), since 1999 lecturer in digital product design (University of St. Gallen, Rhode Island School of Design).

3.3.3 Projekte - Arbeiten

NetAcademy

PROJEKTMANAGEMENT

PARTNERORGANISATIONEN
WEB SITES
www.netacademy.org
www.mcm.unisg.ch
www.businessmedia.org
www.knowledgemedia.org
www.mediamanagement.org
www.electronicmarkets.org
www.mediajournal.org
www.intelligentmedia.org
www.e-media-design.org
www.netacademypress.org