MOVING

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Welcome to our third Newsletter

We have already entered the second half of the second year of our project. We are pleased to announce that the first prototype of the MOVING platform, based on the first set of user requirements, has become publicly available! In parallel to this, we continued the development of individual software components of the platform such as video analysis, scientific figures search and hypothesis testing for web interaction patterns, and a number of scientific publications detailing the results were further produced. We also initiated the implementation of the two user studies, regarding the research on business information by public administrators, and managing and mining research information by researchers, and we will soon start their evaluation. Finally, the MOVING consortium continued in this period to participate in several scientific and industrial events.

1st MOVING platform prototype is publicly available!

The MOVING search page

The first prototype of the MOVING platform is now available to the public! The MOVING platform enables its users to improve their information literacy by training how to exploit data and text mining methods in their daily research tasks. The MOVING search engine provides scalable real-time search, supports multiple document types, different file formats and different programming languages. Faceted search allows to retrieve various kinds of documents such as scientific articles, books, video lectures, and metadata. Graph visualisation highlights relations among documents and related entities (authors, organisations, etc.) and offers an alternative way of exploring search results. Nevertheless, a classical search list is still also featured. For example, the user can click on an author name and retrieve all documents authored by this person. To ensure a smooth user experience, dedicated tools allow us to separate different authors with the same name or connect different versions of the same document. The Adaptive Training Support provides illustrated feedback to the user in order to help her get familiar with the platform and all its features (for example by recommending features the user has not tried so far). You can **try out the platform at https://moving.mz.test.tu-dresden.de/.** Don't forget to send us any feedback that you might have!

Tools - Demos - Results

## User requirements and initial implementation of user studies

User requirements and user studies status

The user requirements are the result of the analyses performed during the first year of the project. Most of these requirements have been implemented already in the MOVING platform. During our last project meeting, the requirements list was extensively discussed and re-prioritized, so that most important requirements are made available in the first public release of the platform. The search and faceted search functionalities have been almost completely implemented, and so are the data sources that the queries rely on to provide results. The concept graph, a very important user requirement, is implemented and ready to use. In order to test the user acceptance and evaluate the use of the platform, we will conduct user studies, taking place during the last months of the project's second year. The evaluations of these studies will provide insight on what needs to be improved regarding the implementation of the requirements. That will then lead to a better user experience, which we will test and evaluate again to check for improvements. These studies are key to the functionalities of the platform and future implementations.

The history view of the search results in the platform

The history view of MOVING platform

The history view in the search results of the MOVING platform shows the different versions of laws and regulations, as show in the figure on the right. The history view can help compliance officers to track the evolution of these documents over time and refer to a specific version, if needed. It distinguishes different kinds of events, such as partial alteration and rewrite. The laws and regulations dataset was provided by Wolters Kluwer within the H2020 project ALIGNED.
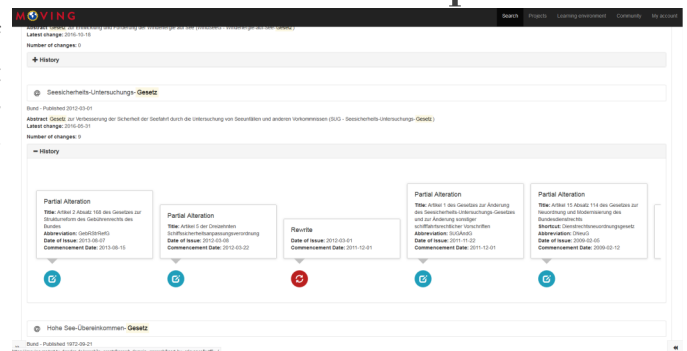
The history view for the word "Gesetz" ("Law")

"Learning-how-to-search" widget

Learning-how-to-search widget of the MOVING platform
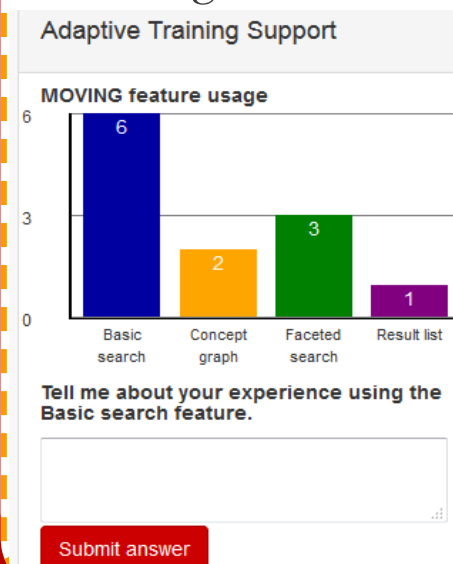
A first version of the "learning-how-to-search" widget is implemented in the MOVING platform. The MOVING user can use the widget and become a search expert. The widget provides feedback about the user's search behavior in order to nudge the user to experiment with different search functionalities and corresponding visualisations available on the platform. For this, it presents a bar chart showing usage statistics for each feature, allowing the user to get a quick overview of the own behavior. Occasionally, the widget prompts questions targeting different search-related topics, like pointing to less used or new features and at a later stage asking about the most satisfactory or favorite features. The feedback textbox gives the user the opportunity to write down his/her thoughts immediately, for revisiting them at a later point in time.

URank visualisation
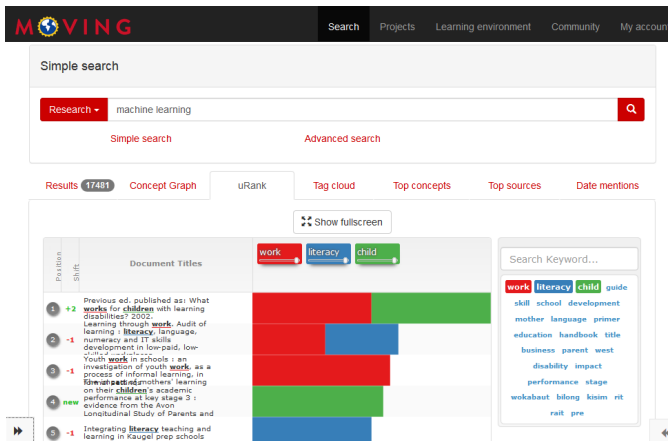
The URank tool in the MOVING platform

uRank is an interactive web-based tool implemented in the MOVING platform, that supports users during exploratory search. The approach combines lightweight text analytics and a stacked-bar-based visualisation to convey a content-based ranking of documents in a search result set. The key of this approach lies in its dynamic nature, supported by a user-driven method for updating the ranking visualisation that allows users to refine their search interest as they evolve

during exploration. The documents and their keywords are passed to the uRank user interface, which consists of three main components: i) The Tag Box, which offers a summary of the document collection by representing extracted keywords as tags. ii) The Query Box, which is a container where the user drops keywords of particular interest. iii) The Document List, which shows the hits sorted according to user-selected keywords. Each hit includes the document title, its ranking position information, and a stacked bar chart depicting relevance scores in terms of user-selected keywords (i.e. keywords in the Query Box). Changes in the ranking representation originate from manipulating keyword tags within the Query Box in three different ways: i) addition by dragging and dropping tags from the Tag Box, ii) weight tuning through keyword-sliders, and iii) deletion. As the user selects terms of interest, the ranking visualisation brings related documents to the top and pushes down less relevant ones. Finally, the uRank interface includes a topical tag cloud that summarises the content of the result set, and provides means for dynamic, user interest-driven re-ranking and exploration of search results.

Concept graph visualisation

The Concept graph is a node-link representation that offers a novel way to find and explore data in the MOVING platform. It shows the connections between the search results and related features (entities), such as authors, their affiliations, and publication dates. Additional entities, such as subjects, keywords or locations may be added in the future. The user can explore the result set by navigating along relationships connecting documents and entities. After entering a query in the search field, the 12 most relevant results will be displayed as nodes in a circular fashion. Hovering over a node will display information about the document and double-clicking will open the document in a new browser tab. Clicking on a node will expand the graph by displaying directly connected nodes, such as the authors of the document or the publication year. By expanding a node, both new connected nodes and their connections to other already visible nodes are added to the graph. The user can quickly navigate through a network of relevant nodes starting from the results of the entered search query. For example, by expanding a document node the user could discover a connection to other documents, which were published by the same author or year (or both).

The expanded ring-menu of a node and the created subgraph
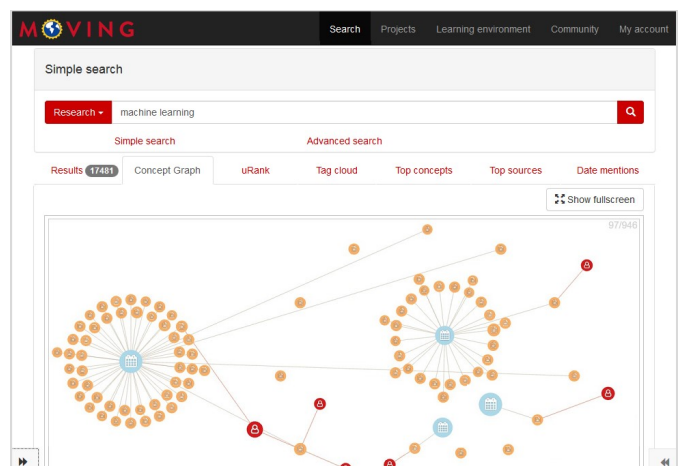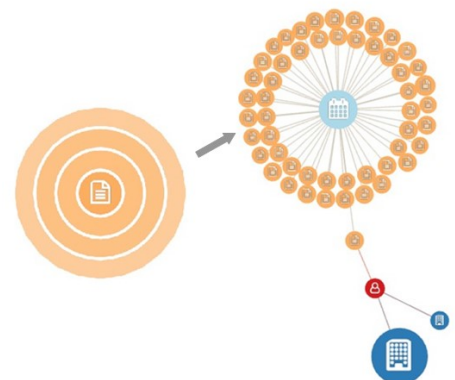
The concept graph with the expanded nodes

Communication and dissemination activities

New MOVING logo

Evolution, rather than revolution, was our guiding principle for designing the new logo of the project. The new logo, pictured on the right, looks modern and fresh, and at the same time is unmistakably "MOVING": with its colors and design, it maintains the visual identify that the project has been building since day one.

Successful organisation of MultiEdTech 2017

The MOVING-organised workshop MultiEdTech2017 at ACMMM 2017 was successfully concluded on October 27th in Mountain View, California, USA. A keynote talk and four oral paper presentations were delivered at the workshop and sparked very interesting discussions on multimedia-based educational and knowledge technologies, and particularly on visualisation technologies on multimedia content available in specialised learning platforms, the Web, mobile devices and/or social networks for supporting personalised and adaptive e-learning and training. You can find the complete set of presentations in the workshop's website. The workshop's proceedings have also been made available by the ACM, and can be accessed at https://dl.acm.org/citation.cfm?id=3132390 .

MOVING presentations on future prospects and exploitation strategy at MCDM'17, SOCA'17 and MOPGP'17

The paper "Multicriteria decision planning with anticipatory networks", was successfully presented by Dr. A.M.J. Skulimowski from PBF at MCDM 2017 conference. Over 200 top experts from 32 countries took part in the conference, and the paper will be published as a book chapter in the MCDM2017 post proceedings by the CRC Press. Also the paper "Applications of the reference set method to the prioritization of technological strategies of a knowledge repository" was presented at SOCA'17. The paper referred to the elaboration of technological hints arising from the Delphi survey performed in MOVING. Finally, Prof. Dr. A.M.J. Skulimowski was invited to give the talk on "Expert Delphi Survey as a Cloud-Based Decision Support Service" at MOPGP'17. The presentation contained the examples from the Delphi survey performed within the MOVING project, and over 100 experts from all over the world attended this session where a long and vivid discussion took place.

MOVING paper awarded @ EICS 2017!

The paper "WevQuery: Testing Hypotheses about Web Interaction Patterns" was presented by Aitor Apaolaza at the 9th ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS'2017). WevQuery supports the testing of hypothesis about user interaction, by allowing designers to create queries based on event sequences easily. This way WevQuery makes complex and low-level web interaction events, such as mouse movement and key presses, accessible to users with little or none querying expertise. A demo was also presented, allowing the conference attendees to use WevQuery's interface to create their queries. For their work on WevQuery, Aitor Apaolaza and Markel Vigo were awarded the best paper award at the conference! WevQuery is built in the context of the MOVING project, where a dashboard for user interaction analysis provides behavioural data to other tasks, including the learning-how-to-search widget that generates personalised learning opportunities.

Successful presentations of MOVING and exhibition stand at the 2017 OER congress

MOVING successfully participated in the 2nd World OER Congress held in Ljubljana, Slovenia, from September 18-20 2017, by organising the satellite event titled "Technologies for OER and Open education: European research projects showcase session". The MOVING satellite event was an opportunity for presenting the latest developments in various MOVING-related technologies (video understanding, advanced visualisation, search technologies, smart learning etc.) and had about 25 participants from different sectors (EC, companies, policy makers), including teachers, researchers, linguists, IPR lawyers, public administrators etc. You can watch the presentations online at: http://videolectures. net/ oercongress2017_satellite_events/. Further to the satellite event, MOVING was also present by having a stand with demos and videos at the main congress exhibition hall, throughout the duration of the congress. This allowed us to disseminate MOVING to more than 500 attendees from 111 countries. Most of them were high-level policy makers, representing the ministry of education or other similar entities of their country.

The MOVING stand

MOVING presented in 2 seminars in Kraków

The MOVING project and its exploitation potential have been presented by Prof. Dr. Andrzej M.J. Skulimowski (PBF) at the Expert Seminar on "Exploitation of the MOVING results by academic communities" at the PBF's premises in Kraków on June 30, 2017. 12 experts from 7 Polish institutions took part in this event. Also, a seminar for students and young researchers, including a presentation of the MOVING knowledge repository capabilities and a discussion on knowledge repository in the context of decision support, e-science, business models and forecasting was organized by the DSS Laboratory of the AGH University of Science and Technology, the Student Scientific Society on Financial Modelling, and the PBF at the AGH premises in Kraków on June 22, 2017. 22 participants, mostly PhD students from the Faculty of Electrical Engineering, Automatic Control, Computer Science and Biomedical Engineering, and MSc students from the Faculty of Mechanical Engineering and Robotics of the AGH UST, took part in this event that comprised altogether 12 presentations and discussions.

Brief news: recent and upcoming events

- A paper on "Content Recommendation through Semantic Annotation of User Reviews and Linked Data" by I. Vagliano, D. Monti, A. Scherp, M. Morisio was presented at the 9th International Conference on Knowledge Capture (K-CAP2017), Austin, Texas, United States, 4th-6th December 2017.
- Two talks on "Reranking-based Recommender System with Deep Learning" by A. Saleh, F. Mai, C. Nishioka, A. Scherp and on "Word Embeddings for Practical Information Retrieval" by L. Galke, A. Saleh, A. Scherp were given in the workshop on "Deep Learning in heterogenen Datenbeständen" (at 47. Jahrestagung der Gesellschaft fuer Informatik) - ws34-dlhd (2017), Chemnitz, Germany, 25th -29th September 2017.
- The paper "SemRevRec: A Recommender System based on User Reviews and Linked Data", by I. Vagliano, D. Monti, M. Morisio was presented in the 11th ACM Conference on Recommender Systems. Como, Italy, 27th-31st August 2017.
- A paper on "Cognitive Content Recommendation in Digital Knowledge Repositories – a Survey of Recent Trends" was presented in the 16th International Conference on Artificial Intelligence and Soft Computing (ICAISC'2017), Zakopane, Poland, June 11-15, 2017.
- A paper on "Linear Maximum Margin Classifier for Learning from Uncertain Data", by C. Tzelepis, V. Mezaris, and I. Patras, was accepted for publication in the IEEE Transactions on Pattern Analysis and Machine Intelligence.

More news about these and other MOVING activities:
http://moving-project.eu/index.php/category/news/

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Centre for Research & Technology Hellas
Information Technologies Institute
http://www.iti.gr

Ernst & Young GmbH
http://www.ey.com/Home

Technische Universität Dresden
https://tu-dresden.de

Know-Center
http://www.know-center.tugraz.at/

Institut Jožef Stefan
https://www.ijs.si/ijsw/JSI

ZBW-Leibniz Information Centre for Economics
http://www.zbw.eu/en/

The University of Manchester
http://www.manchester.ac.uk/

GESIS-Leibniz Institute for the Social Sciences
http://www.gesis.org/en/institute/

Fundacja Progress and Business
http://www.pbf.pl

Contact Details

Project Coordinator: Dr. Vasileios Mezaris

Address: Information Technologies Institute (ITI), Centre for Research and Technology Hellas (CERTH) 6th Km Charilaou - Thermi Road, 57001 Thermi - Thessaloniki, Greece

Tel: +302311 257770, **Fax:** +302310 474128

E-mail: bmezaris@iti.gr

Project Details

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