

Between October 2013 and September 2016 the GI-N2K network formed by 31 partners from 25 countries worked together to analyse the demand and supply of geospatial education and training in Europe, to define a methodology for revising the Body of Knowledge for Geographic Information Science & Technology (BoK GI S&T), to prepare a dynamic ontology-based version of the BoK taking into account the European perspective and the latest technological developments, and to develop a European platform and a series of tools for the geospatial community to maintain and exploit this new BoK.

In 2014, two surveys were organised, one on the demand for and another on the supply of education and training in the geospatial field. Based on the surveys an integrated analysis of the demand for and supply of geospatial education and training was prepared and published. The results of the surveys and the integrated analyses can be found [here](#).

Between Autumn 2014 and Spring 2016, the revision of the BoK and the development of the platform and tools took place in parallel. By May 2016 this work was finalised and the results are now accessible for the geospatial community [here](#).¹

¹ Access to the Curriculum Design Tool should be asked for, since the URL of the application will probably change in the near future. Please contacts danny.vandenbroucke@kuleuven.be.

A new version of the BoK

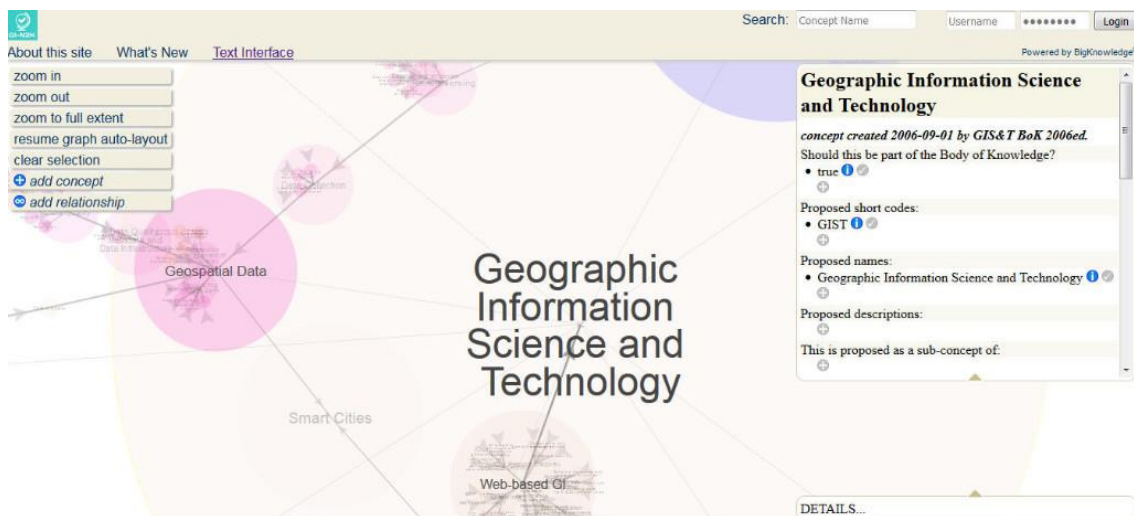
Between September 2015 and May 2016, a network of more than 150 GI S&T experts worked on the revision of the BoK. They were organised in 10 working groups, according to 10 Knowledge Areas defined during a workshop in Athens (September 2015).

Geospatial Data	Analytical Methods
Cartography and Visualization	Geocomputation
Organizational and Institutional Aspects	Web-based GI
Data Modeling, Storage and Exploitation	Conceptual Foundations
GI and Society	Design and Setup of Geographic Information Systems

The working groups defined for their knowledge area a total of 63 sub-concepts which were further sub-divided in 294 sub-sub-concepts. More levels were added below that detailing concepts up-to 5 levels. For example, the concept of 'geospatial data' contains 5 sub-concepts including 'data quality, metadata and data infrastructures' of which the sub-concept 'data quality' was further sub-divided in 6 other concepts including the concept 'uncertainty' which in turn consists of 6 other sub-concepts. The groups started also to work on the relationships between concepts (besides super- and sub-concepts, pre- and post-requisite and similarity), and on the description of the concepts, as well as the related learning objectives. At the time the new version of the BoK became 'frozen' (May 2016), this work was not yet entirely finished. The objective is that the work will be continued in a 'permanent' way, i.e. that in the context of other projects, or specific activities at different universities, the BoK will continuously evolve. In this continuous process, the Association of Geographic Information Laboratories in Europe (AGILE) will play a leading role

GeoWiki and Curriculum design tools

The GeoWiki is a web-based tool to organise the collaboration between experts to discuss and agree upon new concepts in the GI S&T field (theory, method, technology...), or to revise existing concepts. The GeoWiki can also be used to explore the content of the BoK by browsing the different concepts and their relationships, or by searching for a particular concept. The GeoWiki can be used in text or graphical mode (see figure).

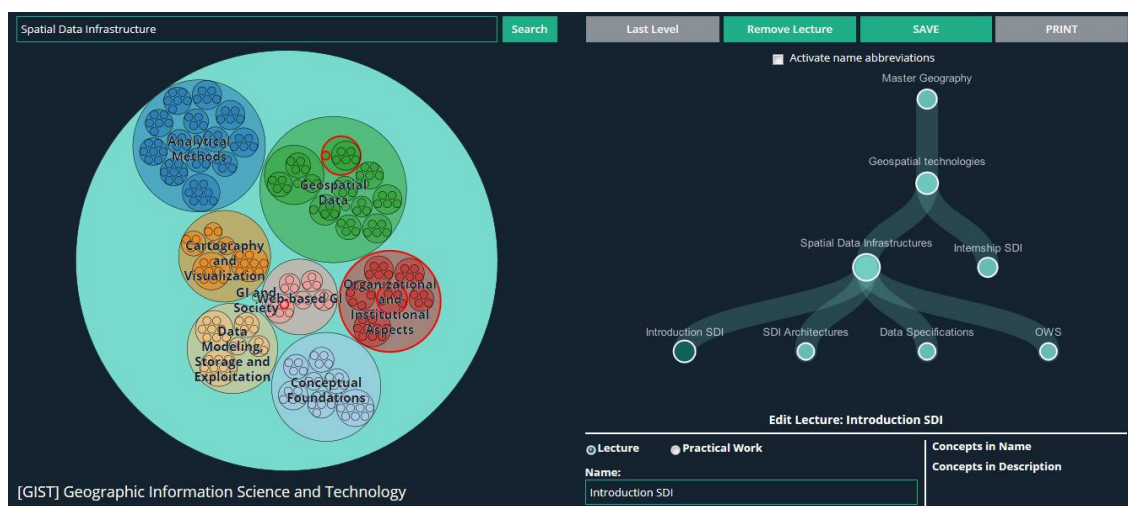


The GeoWiki to maintain the content of the BoK for GI S&T

The changing or addition of concepts is happening through a collaborative process. Experts need to be registered after a selection process by the editorial board made-up of the editors and co-editors of the 10 knowledge areas. Once registered an expert can make proposals which are then discussed among the experts active in a particular field. For each Knowledge Area, the editor and co-editor steer the discussions and it is the editorial board consisting of all the editors and co-editors that makes final decisions, i.e. to accept or not new concepts or to revise an existing concept.

In addition, a Curriculum design tool has been developed to support the development of academic and non-academic curricula and to integrate learning paths (pre-requisites and post-requisite conditions) into these curricula. New

curricula can be defined, existing ones modified or printed. It is also possible to compare two curricula. The system allows the user to manage their own curricula, but the community can see and re-use all the curricula already defined. Curricula can have up-to 4 levels: programmes, modules, courses and lectures or practical works (see figure). While defining a curriculum, concepts from the BoK can be ‘borrowed’ to populate the curriculum with the learning objectives, the description of the concepts, reference materials, etc.



The Curriculum Design Tool interface

7 GI-N2K workshops reach 170 people

Between 23 May and 9 September, GI-N2K organised 7 workshops in 7 different cities (Girona, Debrecen, Salerno, Helsinki, Salzburg, Sofia and Leuven) to discuss the approach and results of the GI-N2K project and to organise hands-on sessions to test the BoK and its tools based on ‘real-world’ use cases. In total more than 170 people participated from the academic, private and public sector. The feedback collected during the workshops was used to resolve remaining bugs and to describe potential improvements and functionalities when the tools will be further developed in the future.



Participants working on the hands-on exercises during the GI-N2K workshop in Sofia, 1 September 2016

GI-N2K participated in the UCGIS Editorial Board, Scottsdale, US

The University Consortium for Geographic Information Science (UCGIS) organised on 23rd of May 2016 an Editorial Board BoK 2.0 meeting during the UCGIS Symposium in Scottsdale, Arizona, US. Danny Vandembroucke participated in the meeting on behalf of the GI-N2K network and presented its ongoing activities. Although UCGIS has a different approach to revise the existing version of the BoK (1.0), there are also many similarities in the approach followed by GI-N2K and UCGIS in Europe and the US respectively. The Board discussed among others the editorial work flows for revising the BoK 1.0; presented and discussed the use of ScholarOne in the revision process;

the publication protocol, guidelines for contributors and much more. The Editorial Board, led by prof. dr. John Wilson of the University South California and editor in chief of Transactions in GIS, consists of 15 GI experts seeking contributions from other experts in different knowledge areas of the GI S&T field. During the UCGIS symposium further cooperation between Europe and the US was agreed upon.



UCGIS Symposium, 24-26 May 2016, Scottsdale, Arizona, US

Contributing to the BoK?

Even after the project life-time, GI-N2K will continue to exist. The BoK will be maintained and the technical platform will remain operational. Individual geographic information experts and organisations active in the field of geospatial science and technology can contribute in various ways. Individuals might help in the maintenance process of the BoK by becoming member of the expert network that proposes new concepts or revises existing concepts, and by adding more content to the current version of the BoK. Organisations might

become member of the network and propose the use of the BoK and its technical platform in the context of other projects. If you are interested, please contact danny.vandenbroucke@kuleuven.be.

Participation as individual expert depends on approval by the Editorial Board of GI-N2K.

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