



Towards a more demand-driven geospatial workforce education/training system

The GI-N2K study

One of the objectives of the GI-N2K project is to better understand the demand for and the supply of geospatial education and training in Europe. In order to analyse the match between the knowledge and competences that are required by employers and organizations in the field of geospatial information (demand side) and the knowledge and competences that are central in the current offer of GIS&T curricula, programmes and courses in Europe (supply side), **two surveys** were conducted as part of the WP1 activities of GI-N2K:

- ✓ **The GI-N2K Demand Survey** aimed to evaluate the current workforce demands in GIS&T and identify presumed future directions
- ✓ **The GI-N2K Supply Survey** aimed to collect information about which GIS&T-subjects courses and programmes are available in Europe and to explore which parts of the GIS&T domain are present in today's teaching

In both surveys the original Geographic Information Science & Technology BoK (Body of Knowledge) developed by the American University Consortium for Geographic Information Science, was used as a starting point for designing the survey.

GI-N2K Demand survey

The **main objective** of the GI-N2K Demand survey was to assess the relevance of individual Knowledge Areas and Units of the existing GIS&T BoK and to identify additional and potentially new areas that should be included in the GIS&T BoK.

In total, **435 surveys** were fully completed by professionals actively working in the GIS&T domain in Europe.

Answers were collected from professionals working in the public sector (39%), private sector (35%), academic sector (23%) and non-profit sector (3%)

The current **GIS&T BoK** was used as the main point of reference in the design of the survey. Respondents were asked to rate the importance of GIS&T BoK KAs in their job on a scale between 1 (not relevant) and 6 (extremely relevant).

GI-N2K Supply survey

The **main objective** of the GI-N2K Supply survey was to describe and analyse the current supply of GIS&T education and training in Europe in terms of course size, level and content and to collect information on the awareness and use of the awareness and use of the GIS&T BoK.

The survey was successfully **completed by 234 organizations** involved in GIS&T teaching and training in Europe.

570 courses on GIS&T in Europe were identified, of which 427 are currently on offer, and 143 are intended to be offered in the near future.

The original **GIS&T BoK** was used as a starting point for collecting information on GIS&T education and training in Europe. Respondents were asked to use the GIS&T BoK to specify the content of existing and intended courses, to a maximum of 3 courses per response.



Results of the surveys

GI-N2K Demand survey

- ✓ The three main sectors – public administration, private organisations and academia – evaluated the BoK Knowledge Areas congruently.
- ✓ The GIS&T community evaluated the relevance of the of the current GIS&T BoK Knowledge Areas in their professional work differently. ‘Geospatial data’ and ‘Cartography and Visualization’ were considered as the most relevant BoK Knowledge Areas, whereas advanced ‘Geocomputation’ received the lowest rating.
- ✓ The gap analysis revealed several topics that are not fully covered in the current GIS&T BoK, including programme development, WebGIS, SDI, data acquisition and other ‘hot’ topics such as big data and augmented reality.

GI-N2K Supply survey

- ✓ Most of the identified courses have a study load between 0 and 11 ECTS, and are given on the levels of EQF5_6 and EQF7.
- ✓ The current GIS&T Knowledge Areas ‘Analytical Methods’, ‘Geospatial Data’ and ‘Cartography and Visualization’ were most often indicated as the subject of the existing courses. The most favorite subjects of the intended courses were ‘Data Modelling’, ‘Geospatial Data’ and ‘Analytical Methods’.
- ✓ Web services, data acquisition technologies, point cloud analysis, programming in Python, UML, XML, Qualitative GIS, and Open source software were mentioned as subjects that are relevant for teaching although they are not covered by the BoK.

Study conclusions

With regard to the gap between the demand for and the supply of GIS&T education and training, indications were found of a need for more teaching about the subjects “Programming” and “Mobile”. The two surveys provided valuable input for the identification of new concepts that should be included in an updated version of the GIS&T BoK. The surveys also showed that the current awareness and use of the GIS&T BoK are limited, especially at the demand side.

Study reports

More information about the GI-N2K Study can be found in the following reports:

- The report **“Analysis of the demand for geospatial education and training”** presents the results of the GI-N2K Demand Survey.
- The report **“Analysis of the supply of geospatial education and training”** presents and discusses the results of the GI-N2K Supply Survey.
- The report **“Integrated analysis of the demand for and supply of geospatial education and training”** provides a comparison and integrated analysis of the results of the two surveys

All reports can be downloaded from the project website.