

# ISO/TC211 PROJECT 19122, GEOGRAPHIC INFORMATION / GEOMATICS – QUALIFICATIONS AND CERTIFICATION OF PERSONNEL – STATUS AND DEVELOPMENT

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## ABSTRACT

The necessity for worldwide standardization of Geographic Information is well known. Standardization is important for the production and use of geographic data, the GIS industry and the application of their products. The development of national and international Geographic Information Systems has been proceeding rapidly for many years. In the meantime in many countries, experience in establishing and maintaining and especially using them is available. Additionally other problems must be solved; e.g. coordination, quality management and currently economic management instruments become more and more important. Many activities are focused on these tasks worldwide. In all fields, the importance of International Standards is steadily increasing. The authorities to develop standards are the official standardization bodies at the national level (e.g. AFNOR, BSI, DIN, NTS, SCC, ANSI, SABS,SA). On the European level, the CEN/TC 287 'Geographic Information' of the Comité Européen de Normalisation (CEN), has developed 20 standards since 1990 about 20 standards and CEN/TC 278 'Road Transport Telematics' developed the GDF – Standard (Geographic Data File). World-wide, the International Standardization Organization (ISO) has established several Technical Committees, e.g. ISO/TC 211: 'Geographic Information / Geomatics' in 1994.

Besides the global activities at ISO, many organizations and institutions are working on this subject, e.g. OGC, DGIWG, FIG, ISPRS, ICA, governmental administrations (de-facto standards). Until now, the focus has been based mainly on the data, interfaces and their technical and organizational structures. To optimize the production of geospatial data and to improve the GIS quality of the output, one of the most important criteria is the qualification and certification of personnel. Technology transfer through human resources becomes increasingly important from a global economic perspective. The result is the current effort to standardize qualification and certification of personnel in Geographic Information / Geomatics, which is under worldwide discussion, and is a special work item of ISO/TC 211 under the Project team 19122.

On the basis of development and status of GIS-Standardization the author will report about the approaches to improve the qualifications and certification of personnel. ISO/TC 211 established in 1998 by Canadian proposal the Project team 19122 "Qualifications and Certification of Personnel", where the author is a member from.

One of the new aspects of this task is, according to the interdisciplinary character of GIS and the involved professions; not just one profession is covering all the tasks of the GIS. Additionally there is no overview and analysis of the existing systems of qualifications and respective certification for guaranteeing the quality of the products and personnel. So the PT 19122 started in March 2000 a questionnaire to get a first overview about the current global situation.

Because of the special frame-conditions and character of this subject the result of PT 19122 will not be an ISO-Standard but an ISO-Technical Report, Type 3.

- *To develop a Type 3 report, which describes a system for the qualification and certification, by a central independent body, of personnel in the field of Geographic Information Science / Geomatics.*
- *To define the boundaries between Geographic Information Science/ Geomatics and other related disciplines and professions.*
- *To specify the technologies and tasks pertaining to Geographic Information Science / Geomatics.*
- *To establish skill sets and competency levels for technologists, professional staff and management in the field.*
- *To research the relationship between this initiative and other similar certification processes performed by existing professional associations.*
- *To develop a plan for the accreditation of candidate institutions and programs, for the certification of individuals in the workforce, and for collaboration with other professional bodies. (ISO/TC 211-N573 1998)*

The questionnaire showed among others the diversity of the existing systems and the different interpretation of certification. It was now decided to continue elaborating case-studies of many countries on the basis of unified templates.

The case-studies allow synthesis and development of recommendations of ISO/TC 211 for information and basis for the respective work of nationally and internationally interested organizations.

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## **BIOGRAPHICAL NOTE**

**Hans Knoop** studied Geodesy at Hannover University and finished the respective administrative preparatory exams in Germany. He was a member of the Cadastral- and Surveying Administration of the State of Lower Saxony in different directing positions in State Survey Office, Cadastral office of Hannover and the Ministry of Interior (1964-2000). His main activities have been concentrated in developing new technologies (e.g. Dissertation 'Electronic Tacheometry; Dr.-Ing. 1970) especially in LIS and GIS including legal and administrative aspects. Professor at Technical University of Braunschweig (since 1976). Since 1975 Head of Department 'Surveying, Geoinformation' of German Institute for Standardization (DIN), Berlin, and as well Head of German delegation in CEN/TC 287 (since 1990) and ISO/TC 211 (since 1994). Member of ISO/TC 211 –PT19122. Representative of ISPRS to ISO/TC 211. Many activities in FIG on international and national level (Com.3, Task Force on Standards). International expert for GIS and Land Management for several organizations and governments. Appointed Honorary Professor of Wuhan Technical University of Surveying and Mapping (WTUSM), China. Numerous international and national publications.