GeoSkills Plus, made in Germany

During the GeoSkills Plus Workshop in Harderwijk (NL), 21 – 22 May 2014, Dieter Seitz presented a paper on the education and training of surveyors in Germany. His country has always organized three levels of education: the surveying technicians, bachelors (land surveyor) and masters (geodesist or Geodät, in German). It's clear that the state and surveying companies are jointly in charge of training, ranging from the lowest level of training to publicly appointed surveyors. The professional associations need renewal in the form of youth and new faces.

Dieter Seitz, Domain Expert, Publicly Appointed Surveyor

Surveying technicians

Surveying technicians or geomaticians are located at the technical level. An apprenticeship of three years is required, which normally leads to the professional qualification of surveying technician or geomatician after three years of training.

The general certificate of secondary education is required as entry level for this type of apprenticeship. In Germany, this means 10 years of school finishing normally at the age of 16 years.

The apprenticeship is performed in private or public offices. It is regulated and controlled by the state. In the first year the contents of the apprenticeship is the same for both professions (technicians and geomaticians), in the second and third year it differs.

Apprentices attend a public vocational school for a period of three years and are simultaneously trained in a company; it is a so-called dual training. Trainees work in an apprenticing company and have intensive courses at school for three to six weeks three times a year.

Surveying Technicians work in land registry offices, for publicly appointed surveyors, or in engineering offices guided by engineers, especially in the field of on-site surveys, or in offices collecting and processing surveying data.

The 'geomaticians' apprenticeship is more focussed on GIS and mapping. They work mostly in land mapping

Dieter Seitz, German Publicly Appointed Surveyor and CLGE Treasurer.
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agencies or cartographic offices.
Technicians have several possibilities to progress to University or Technical University.

Bachelors

Bachelors are trained at Universities of Applied Sciences. These institutions offer an education of three and a half years including six months of traineeship in an office or in the industry.
The studies are more oriented towards practical training. The former graduate engineer's degree (technical college) or the current bachelor degree is at mid-level. Surveyors with a bachelor degree can assist in more complex surveys and instruct surveying technicians.

After an additional training of one and a half years in the public sector and a subsequent surveyor's state examination, bachelors can qualify for a position in the upper grade of the civil service. In some federal states of Germany they can become a private publicly appointed surveyor after two more years of practice in the cadastral field, working in the public sector, or for a publicly appointed surveyor who plays the role of mentor.
Surveyors with a good bachelor's degree, interested in further studies, can achieve a master's degree in the same institutions (4 more semesters). However, it is currently not possible to achieve a doctor's degree at Universities of Applied Sciences.

Masters

Masters have to attend university. The entrance requirement is the A-level obtained at the secondary school. Normally, the bachelor's degree (BSc.) can be achieved within three years (more theoretical training) and the master's degree (MSc.) an additional two years. Subsequently, surveyors can work in the industrial sector or in a private office or stay at university to start a PhD. If surveyors want to work for the state as civil servants (higher service) or become publicly appointed surveyors, they have to pass a traineeship of two years in the public sector after having achieved the master's degree. Eventually they have to pass the second state examination. To become a publicly appointed surveyor a further year of practice in the field of cadastral surveys is required.

Measures taken in Germany to attract young surveyors

In 2010 the German professional associations (the DVW is the umbrella association including all surveyors independently of where they work; the BDVI is the professional association of publicly appointed surveyors and the VDV is the professional association of surveyors) decided to cooperate to find a standard solution for issues about the future.

For instance, the three associations have taken a first measure by establishing a Geodesy Academy for Continued Professional Development: www.geodaesie-akademie.de

Another result of their cooperation led to the creation of the website www.arbeitsplatz-erde.de. It is available in English. It addresses questions such as

What is geodesy?

- Practice & everyday work: What kind of jobs can you get with this education?
- Study programmes (universities, colleges, study programmes)
- Career (career perspectives, job profiles, etc.)
- Downloads & links

Additionally, it was agreed with the academic sector that the generic term for all surveying professions will be GEODESY. This umbrella brand comprises all fields of surveying: apprenticeship, study programmes and junior surveyor recruitment.
The academic sector was asked to integrate the brand "Geodesy" in a prominent position into the titles of the study programmes.

Career perspectives

Currently the situation is very good for all fields of surveying. In Germany we have both a lack of skilled surveying technicians and engineers. The number of apprentices has decreased from 928 to 550. There has also been a decrease in the number of students and graduated engineers who successfully pass the traineeship and the second state examination.
At the same time, the age profile of publicly appointed surveyors, and in the civil service, has changed to an alarming extent. More than one third of our colleagues are older than 60 years of age.
In Germany we head towards a period in which we no longer have the necessary junior surveyors.

Therefore DVW, BDVI and VDV have created the website www.arbeitsplatz-erde.de (see above), which addresses young people and is designed to encourage their interest in surveying. Furthermore, these associations try to campaign for surveying in schools. The results are obvious: the number of students in geodesy at the University of Bonn increased by 100% in 2013.
Another project designed to encourage the interest of young people in surveying study programmes or in apprenticeship is the "GIS in schools" competition launched by DVW.

From the 'artes liberales' to knowledge-based service provider

In several European countries, the private surveyor is said to have a "liberal profession". Other countries don't have this concept. But what is it exactly?

Jean-Yves Pirlot reports, based on a document of EESC

The term 'liberal professions' refers back to the term "artes liberales", or "liberal arts", used in classical antiquity for occupations such as teaching, law, construction, architecture, engineering and medicine. The "artes liberales" were the preserve of free citizens and nobility. Surveyors were counted among these privileged citizens.
Since the 19th century, the liberal professions have no longer been defined on the basis of the "free birth" of a practitioner, but according to the activity performed.

By the early 1800s, certain liberal professions had become very closely connected with the State. This prevented them from operating independently, which resulted in them being held in low esteem by society. In the 19th century, under the influence of liberalism, the liberal professions in a number of EU countries developed a consciousness of their status and established professional organisations independent of the State. For example, the legal profession managed to free itself from State influence, and the academic medical profession likewise achieved a degree of freedom from State regulation and monitoring.

Activities surrounding authorisation to practice, codes of conduct and professional supervision were often taken over by professional organisations. Later on, regulatory power was transferred to the self-governance organisations/professional associations.
Currently, a liberal profession can be characterised by:

- the provision of a valuable intangible service that is distinctly intellectual in nature based on advanced (academic) training
- a service that is in the public interest;
- a substantive and economic independence in executing tasks;
- the provision of services in a personal capacity, on the provider's own responsibility and in a professionally independent manner;
- a particular relationship of trust between the client and the service provider;
- a focus on providing the best possible service rather than on maximising profit;
- and compliance with precise, strict professional regulations and codes of professional ethics.

An activity may also be regarded as a liberal profession in the absence of some of these elements, provided the principal characteristics are met: for example, in many countries an activity undertaken as an employee may be regarded as a liberal profession if substantive independence is maintained.
The state employs many architects, physicians and surveyors. They are employees but they often have to respect the rules set by the body regulating the private profession.
The European Economic and Social Committee notes that the liberal professions and the organisations which regulate such activity in Europe have branched out. The new liberal professions, such as psychologists, social workers, tax advisors, bankruptcy advisors, surveyors and mediators, which are not classified as liberal professions in all countries, require an inclusive approach.
There are significant differences between EU Member States in the definition of the term "liberal profession", and some do not use the term at all. In some countries, only a small group of occupations are regarded as liberal professions: medicine, advisory professions such as law, tax consultancy and auditing, employment consultancy and engineering and architecture. In other Member States artistic activities are also counted as liberal professions.
One objective that is common to all Member States is to ensure that the defining characteristic of the liberal professions – the asymmetry of information between service providers and their clients – is not abused. The services provided by the liberal professions are complex and require a high degree of expertise, which means that service recipients do not have enough information, specialist knowledge or experience to judge the quality of the service, either when choosing a provider or after the service has been provided.

Liberal professions are therefore based on trust. The asymmetry of information means that service recipients must be able to trust providers not to exploit this information deficit for their own benefit, but rather to provide the best possible service, tailored to the client's needs. Service recipients are thus making a leap of faith when they engage a service provider. Minimum professional standards and compliance with codes of professional ethics are appropriate ways of protecting service recipients' trust.
Therefore, CLGE has developed a Code of Conduct for European Surveyors. It was adopted in Rome in September 2009. The transposition process is ongoing. About 60 % of the CLGE members have acknowledged, approved or transposed the Code of Conduct. In a next phase we will check how this Code is enforced.