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# Cartography Education in the Swiss Federal Statistical Office

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**Abstract:**

The Swiss Federal Statistical Office (FSO) is Switzerland's national competence centre for official statistics. It produces and publishes statistical information on all politically and socially relevant topics. This information is used for opinion building among the population and for the planning and management of key policy areas. ThemaKart is the competence centre for cartographic services and information within the FSO and for its customers. Its services mainly comprise the production of atlases and maps for the publication of statistical information, consultation and training related to spatial visualisation, the management of the FSO regional database, and, last but not least, the training of junior staff in geomatics, with a specialisation in cartography.

Vocational training in geomatics EFZ (engl.: Federal Certificate of Competence) lasts four years in Switzerland. It is divided into practical training in a company (the main part), school education (10 weeks per year, at a time), and inter-company courses (1 week per year, changing venues). There are three key areas of training: Cadastral surveying, Geoinformatics, and Cartography. The in-company training has a modular structure and consists of 25 learning modules, each of which teaches in-depth knowledge on a specific subject area. Each one consists of a theoretical introduction, practical exercises, and a documentation. The practical trainers are responsible for the implementation and conduction of the learning modules.

The training plan specifies technical, methodological, personal and social competences. The concrete training contents are defined via generally applicable goals and company-specific goals. The mostly used training methods are instruction, autonomous training (with a learning script), and coaching. In addition, the apprentices gain a wide variety of experiences in the everyday work in a federal office, which enriches the training beyond the defined knowledge and capacity goals. The confrontation with very practical problems (e.g. in IT) and their solution is also a part of their personal maturation process. The final part of the training period is the qualification process. It starts with an individual practical project (lasting up to 120 hours) which is assessed by the practical trainers on the basis of a predefined criteria catalogue. The presentation of the project (documentation and results) to a board of experts is followed by an expert discussion. School examinations in professional knowledge and general education, as well as an experience grade (average of all school certificates during the education) are the other parts of the qualification process. In case of very well school grades, geomatics trainees can obtain the vocational mature, either during their four-year training period, or subsequently, with one year of full-time schooling. After a successful entrance examination they can study at a university of applied sciences.

Today two Swiss companies offer a training in cartography: the Federal Office of Topography swisstopo (in Bern, four apprentices per year), and the FSO (in Neuchâtel, one apprentice every second year). A reform of the training curriculum is currently underway. From 2025, only two key areas of vocational training in geomatics will remain: Cadastral surveying and Geoinformatics. To avoid a lack of cartographic skills, the proportion of cartography teaching content will be higher in these two key areas as it is today. In addition, the cartography training companies can achieve an in-depth specialisation of their apprentices by defining company-specific capacity targets. In recent years the demands on the apprentices have been extended and increased. Interdisciplinary skills such as work management, project planning and also programming skills become increasingly important. Beyond the subject-specific cartography training and the company-specific focus on thematic and statistical maps, the knowledge in GIS and HTML technologies has gained strongly in importance. In the course of advancing automation, standardised production processes and generally valid visualisation guidelines, cartography has evolved towards a discipline of data visualisation. Nevertheless, the principles of the graphic system and visual perception remain the same. Especially from the perspective of map users it is essential that the knowledge of making high-quality maps will be maintained in future training curriculums of Geomatics and Geoinformatics trainees.