

**CONTINUOUS EDUCATION
AS PART OF
THE NATIONAL TOPOGRAPHIC DATA SYSTEM
IN FINLAND**

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Abstract

The Topographic Data System (TDS) was launched in 1992. Since then the training of the users has been a great task. Number of the users is appr. 400, and map production has undergone considerable changes over last years. Courses were intended for three personnel groups: management, technical support and the users. The Training Project is in progress, including 34 courses with total of 796 participants by December 1994.

Experience show that the skill of using the system properly is an essential part of TDS. Experience show also that courses should be held more in our regional offices, as near the user and his problems as possible. It turned out that basic knowledge of data processing was variable. Consequently, the Education Programme of 1995 includes new possibilities to make an individual timetable of studies. This may contain a curriculum of a school, courses of our own programme or courses of other organizers. We have also learned to see the Training Project as a continuous process that lasts as long as the TDS is in use.

1 Background of Training in the Topographic Data System

The graphic Basic Map series 1:20 000 extended the whole area of Finland, 337 000 km², in 1975. Digitising of data started in 1970's by automating some steps in the fair drawing process.

Systematic training in digitising of the Basic Map began in autumn 1988. Then was the introduction of the Fingis application software, which was used mainly in stereoplotting. In spring 1989 this application was introduced into production in three regional offices and a training, length of 3-4 days, was held in each office. In 1991 the Fingis application software was in use in five regional offices. This application software contained only object types of point and line. So it was used only at some stages of the Basic Map production. At that time the intention of digitising was only to make the graphic product.

A complete change took place in april 1992 as the Topographic Data System (TDS), first concerning data compilation, was launched. The System based on the new Maagis application software. In the Topographic Data System data is compiled into the Topographic Database. The Topographic Database is a basis to various graphic and digital products. Now the whole process was digitised. Production started in 9 regional offices and the Training Project started on a large scale. In 1993 production expanded as two more regional offices began to use the system. Changes were great to the users also. The all-digital data compilation system was quite new to most of the users. Therefore the Training Project was not only a great task but also a challenge to us.

2 Education Programme of the Topographic Data System

2.1 Groups of Users

Courses were intended for three personnel groups: management, technical support and users.

From the beginning we saw the important role of management in introducing the system on such a large scale. Consequently the Education Programme started in February 1992 with a course intended for management. The aim of this course was to give a good general view about the TDS and to strengthen confidence in the system. A course of the same kind, intended for management, was held in January 1993. By then were new considerable parts of the system introduced. Undoubtedly strengthen of faith was needed also. A part of management were in some later courses, especially when new parts of the system were introduced. For example, "Topographic Map 1:20 000 - Use of PostScript" in August 1994 was one of such courses.

The technical support persons in regional offices were in central position as the system introduced into production. The first course directed to technical support was in March 1992, having 15 participants. Up to now there are 32 technical support persons in 11 regional offices and Geographic Data Centre. The training was arranged so that the technical support persons were in most of the courses, and they on their behalf distributed knowledge in their own offices. By the end of 1994 there were five courses intended only for technical support. Now it seems that the Technical Support Meeting has become an annual meeting that concerns topical subjects.

Support of the users usually proceeds like this: As a user faces a problem he can not solve, he asks the technical support person. If the problem can not be solved, the technical support person contacts with the technical support of the Development Services Departement in the Geographic Data Centre. This departement gives concentrated support to technical support persons. At present there are four persons working with this support. The prescribed support system is flexible, and support is given by all possible ways.

Users have been in the courses from the beginning. There were two important courses for the users in April-October 1992. The subjects of these courses were "Stereoplotting" and "Digitising". There were 2-3 users from each regional office attending these courses. The first course that reached all the users was "Data Compilation, Advanced Level", a three-day course in February-May 1993. It was held in all regional offices.

In 1995 we plan to hold two courses that are intended for all users and will be held in regional offices (see Table 2 for details). The subjects of these courses are "The Topographic Data Quality System" and "Support in Regional Offices". Total number of the users at present is appr. 400, most of them working in digitising in 220 work stations.

2.2 Schedule of Courses in 1992-94

Information of courses, including number of days and participants, can be seen in Table 1 below.

Table 1: Courses of the Topographic Data System in 1992-1994

Subject	Date	Days	Participants	Group
Digital Basic Map Production	feb 1992	4	22	man
Technical Support Initiation into TDS	mar 1992	5	15	sup
Stereoplotting	apr. may 1992	2x5	29	use
Digitising	may, sep 1992	2x5	29	use
Digitising II	sep, oct 1992	2x4	31	use
Technical Support Meeting	nov 1992	3	17	sup
The Topographic Data System	jan 1993	2	24	man
TDS System Work	jan 1993	1	14	sup
Data Compilation, Advanced Level	feb-may 1993	11x2	200	use
Basic Map Production	oct 1993	3	25	use
Data Transfer into Customers' Applications	oct 1993	2	26	sup
Topographic Map 1:50 000 Production	nov 1993	4	28	use
Criteria of TDS	jan 1994	3	38	use
Data Updating	feb 1994	2	37	use
Topographic Map 1:50 000	mar 1994	3	28	use
Topographic Map 1:20 000	apr 1994	2	32	use
Quality of TDS	may 1994	1	19	sup
Topographic Map 1:20 000 - Use of PostScript	aug 1994	1	42	use
Users' Meeting	oct 1994	3	75	use
Technical Support Meeting	nov 1994	2	35	sup
One-year Updating of TDS	nov 1994	2	30	use

Last column in Table 1 indicates the group which the course is intended for. Shares of the three groups are (of total number of course days): management (man) 8%, technical support (sup) 28% and users (use) 64%. The total number of courses is 34 with 796 participants by December 1994. The average number of participants in one course is 24. The Training Project is in progress, and planned education in 1995 includes new courses and other studies (see Table 2 for details).

2.3 Contents of Courses

Courses can be divided in two groups according to purpose and method used in the courses:

- 1) Courses that give information about new features
- 2) Courses that are aimed to improve users knowledge and skills. These courses always include practice training.

Courses that give information were normally short, 1-2 days of length. These courses comprise theory and demonstrations. The courses that are aimed to improve knowledge and skills were 2-5 days of length. The number of these courses was 15 of all told 21 different kind of courses. Thus we find that the courses were mostly practical. The share of practice training, were 30-80% of courses total time. Practice training was mainly held in work stations. In a course we used 10-12 work stations in practice trainings and there were 2-3 pupils in each work station.

3. Experiences and Conclusions

We have found out much about training a large system. The TDS was introduced into map production gradually. Experience show that this was the best way to do it, especially as we consider the great number of users (appr. 400) and the point that the system changed map production thoroughly.

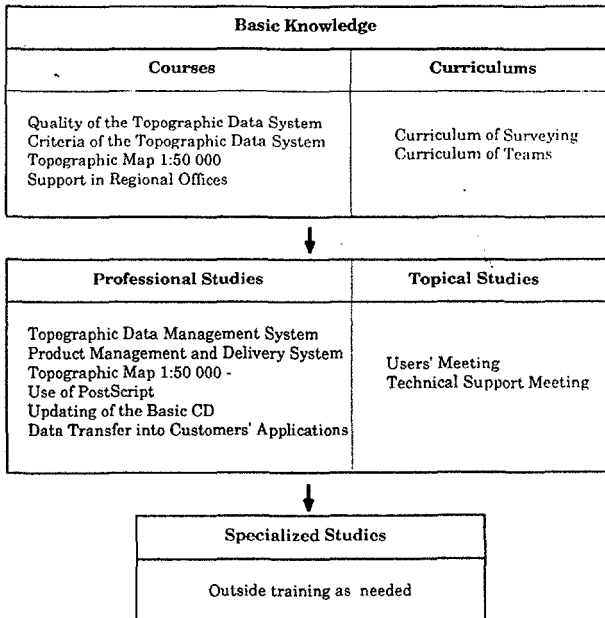
Experience confirms clearly that the skill of using the system properly is an essential part of the TDS. Experience show also that courses should be held more in our regional offices, as near the user and his problems as possible. This requires great efforts in a land where distances are relatively long. Still we found it influential that a user can learn in a familiar environment and use his own work as practice training. We often got such feedback that there were too little practice training in our courses. Although the courses included many practice trainings, it seems that we should have given more time in practice training. We should have planned more independent practice training before and after courses. We have faced many problems during the Training Project. Training has progressed simultaneously with improving of the TDS. Planning of the Education Programme has been difficult, because the learning process has not went side-by-side with the development of system. The pupils, or the users, have faced many challenges also. However they have been eager to apply new systems to work, and experiences have been positive.

The Topographic Data System has now been in production for over three years, and we can appreciate the influence of training. Most of the users use the system easily. Only some parts of the system need practice and support. It turned out that basic knowledge of computers and data processing was variable. This has been a hindrance to value the benefits of training. Anyhow, the work is progressing well now.

4. Present and Future

In the Education Programme of 1995 there are new possibilities to make an individual timetable of studies. This may contain curriculums of schools, courses of our own programme or courses of other organizers. Individual timetable may include practice training in one's own work. This practice training is closely connected with theoretical lessons. A student can agree on the timetable with his superior. Then the studies will give him ability to work better now and in future. In the Education Programme of 1995 the education is divided into different parts to be looked at this new perspective (see Table 2 for details).

Table 2: Education in the Topographic Data System in 1995



The Training of Topographic Data System has been a great task. Both the users and us, the trainers, have got useful experience. We have also learned to see the Training Project as a continuous process that lasts as long as the Topographic Data System is in use.