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The Edition UmWeltrecht - A Computer Based Tutorial System and Legal Data Base on Environmental Law

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Abstract: The area of environmental law in Germany is one which requires the study of many statutes, rules and regulations. The University of Hannover, in conjunction with a publishing house, has developed a computer based training and information system to meet the demands of the business and administrative sector. This paper examines four programs which have been developed and distributed in the Edition Umweltrecht Series.

I. Introduction

The multitude of statutes, administrative rules and regulations pertaining to environmental law, produced by the various law making bodies at the European, federal, and local government level, is hardly comprehensible or manageable even for an expert. The European Community alone has enacted more than two hundred acts of directives and regulations in the area of environmental law. The controversial judicial decisions made by the European Court and by federal and superior courts has led to uncertainties regarding the law, not only at the relevant government departments, but also in businesses affected by these new regulations.

Regrettably, despite the complex nature of environmental law, the subject has not been established as a compulsory part of a law student's training at University nor at further education and commercial colleges. Only a few universities have envisaged the subject "Environmental Law" for integration into future curricula. Even more disturbing is the fact that those studying technical subjects and administration, i.e. the people who in the future will implement or be affected daily by environmental legislation, have little possibility of studying environmental law. The deficiencies outlined have been enhanced by the German unification.

In view of the above, it is not surprising, that the demand in the business and administrative sector for a tutorial system in the area of environmental protection law is extremely high. In practice this demand is reflected in the high attendance levels on courses dealing with environmental law offered by independent academics and other further education organisations.

Even in the civil service, worries have been voiced about the lack of competence and expertise in this area. This is not surprising, as federal and local government has been given the task, if not the burden, of administering the array of rules and regulations without always possessing the necessary expertise to implement and control these regulatory procedures.

This multifarious demand for a workable and accessible tutorial and further training system was the reason why, in 1990, the Computer/Law Institute at the University of Hannover began developing an integrated computer based training and information system in co-operation with a publishing house with large experience in electronic media.

One of the tasks of law and computing is to mould the potentials of computerised data-processing and communication, into a relevant and workable system, one which can train and simultaneously convey important legal knowledge and information to a wider public. Since 1990 four different programmes in the EDITION UMWELTRECHT series have been developed and made available.

- Water Protection and Resources Law include. The Environmental Impact Assessment Law (Taeger)
- Waste Disposal Law (Versteyl/Hoyer/Taeger),
- Emission Protection Law/Air and Noise Pollution Law (Bothe/Meidrodt/Taeger),
- Environmental Liability Law (Salje/Taeger).

These four legal information systems supply the existing natural science data bases and the already developed planning and control environment information systems.

The tutorial and information system can be used by all DOS 3.30 and upwards systems with a VGA graphic card and a colour monitor. The system takes up 6-11 MB on the hard-disc. It may be implemented on a single PC or in a network. In the meantime licencees have integrated the programmes into a complex multi-disciplinary environmental information system using UNIX. No other known computer based tutorial system in Germany has more scope and depth as the EDITION UMWELTRECHT system. Furthermore, the system is regularly updated three times per year; therefore the programme is always up to date.

II. The Didactic and Technical Concept

The development of the EDITION UMWELTRECHT system was based on the assumption that the potential user would be a highly motivated adult with an inherent interest in the subject matter and requiring up to date answers to questions arising in daily work, without having to master a complicated information retrieval system. Or as decision-maker, requiring additional and detailed information to be used as a basis for the decision. These assumptions resulted in the integration of a tutorial programme within a comprehensive information system.

Special consideration was given to the 'look and feel' of the programme by the team of developers. As the programmes each contain thousands of pages, these have to be designed with a consistent lay-out. This consistency enhances the user's concentration and accustoms the user to the system, thereby avoiding a frustrating and constant reorientation process. Only the most necessary orientation, operating and tutorial information is displayed on the screen.

The diction used and the legal terminology is clear and concise, geared to the requirements of the non-jurist. The objective is to achieve a high degree of general comprehension. Any unavoidable technical expressions used are explained and can be looked up in the glossary using key F5. Furthermore, the program is designed in a way that permits the user to control the speed, extent and intensity of the learning process.

The program does not include control questions, dialogues or tests as the program is aimed at a heterogene user-group, with various levels of prior-knowledge and different requirements. Moreover, the evaluation of other tutorial programmes has shown that dialogues require a homogenous user group with similar levels to be of any avail. In addition, too many dialogues or questions may affect the acceptance of the program by making it too difficult for some to use and too easy for others.

Having started the program, the user has two choices: either begin with the program or obtain information about operation of the program. If the latter is required the user hits any key and the function and arrow keys are explained. These are the only keys needed throughout the entire program. Furthermore, if help is required at any time the user merely presses function key F1. Instead of Function keys, the user can also use a mouse and click the required fields. The use of a mouse naturally makes the process faster for the user. It must be emphasized that because of the modular program structure and despite the use of colour graphics, the retrieval of information is extremely quick.

The status line located at the upper margin of the screen displays the user's position in the hierarchically structured program. By pressing F3 the user gains access to the upper menu and at least to the main menu. As a result the user can orientate himself in the program without confusion.

The tutorial information can be worked through on a linear basis and in freely chosen segments, or targeted information can be called up by using the menus and choosing the appropriate part. The occupied function keys are depicted at the bottom of the monitor. Only the function keys which can be used on a particular page are visible on the screen.

The screen is divided into two vertical parts: Placed on the left are hundreds of colour graphics, which help illustrate the tutorial and information texts on the right. The graphics serve to animate the texts and help to explain complex relations. Moreover, they can assist in the learning process and information retrieval. Graphics support the user in understanding difficult legal circumstances and technical processes and are also a visual motivator, which can only help the user in the orientation process.

Based on the experiences and research results of colour psychology, a consistent pattern of colours and picturegrams, which support the optical structure of the text, have been used. For example, the basic text is always displayed on the right on a papergrey background. Whereas additional information appears on the left on a blue background which can be blended on and off the monitor.

The user can also make notes to be stored in the program and carried over in a later updating. In addition the use of F10 calls up a notice book which has a storage capacity limited merely by the space available on the hard-disc. The notes can be exported into the word processing program or printed out.

III. The Tutorial Program

Having started the program, the user is served with the main menu, which contains ten tutorial chapters and a so called service chapter. Among other things, the service chapter includes: comprehensively arranged references to further reading matters, as well as the addresses of environmental organisations and all governmental departments and offices responsible for the environment, right down to the level of local communities.

In the main menu a chapter can be selected and opened either with the arrow-keys and the return-key or with the mouse. However, the opening of a chapter to find out its contents is not necessary as these are displayed in a window on choosing the chapter. The technical chapters which are not orientated towards the statutory hierarchy, but focus on problem areas, lead into the appropriate legal area. The detailed texts have been prepared by eminent and experienced practising lecturers, lawyers and experts in the field of environmental law.

After selecting a chapter on the tutorial program the user is briefly introduced into the subject matter. The student has the choice of either working through the entire chapter or selecting sub-chapters from the sub-menu. The user can obtain even more information by selecting the hypertext function. Definitions of general legal terms, short explanations of statutes or leading court decisions, can be

called up onto the screen by pressing or clicking F4. The text appears on the left in a window blended over the graphic. In the texts using hypertext important passages or terms are highlighted with colour.

Hypertext in this context may be defined as additional retrievable, page orientated information. In some cases further information is stored behind the hypertext at a deeper level. On leaving hypertext the user is returned to the page of departure. This has been done consciously so as to avoid the problem of "lost in hyperspace" which is noticeable in hypertext-systems.

IV. The Information System

The EDITION Umweltrecht was developed not just as a tutorial program, but also as an information system. It can be considered an information system for the following reasons. First, users wishing special information can use the program to retrieve it. Therefore a business is in the position to find out, e.g., if a certain use of water requires official approval, or if this use will be approved on condition. Moreover, the user can check if the institution of an environment inspector within the enterprise is required, and discover the appropriate and competent authority, including address, and what incentives are being offered to encourage environmental protection by the E.C., the federal or the state authorities.

The service chapter has a direct information function and offers:

- an overview of incentives for environmental protection offered to commercial enterprises,
- addresses of non-governmental organizations and authorities at federal and state level and the remaining environmental authorities under the state level,
- a comprehensive overview of the relevant literature.

The dictionary and legal databases can be called up horn any point in the program. The dictionary contains an alphabetically ordered glossary, including all relevant terms from the appropriate legal area. In addition, it is also indicated in which part of the program the term is elaborated.

The legal database, the use of which requires no knowledge of retrieval systems, contains some thousand pages of E.U. regulations and directives, federal and state statutes, rules, regulations and administrative orders. Moreover there is no other electronic database known in Germany which contains the full text of acts, regulations and administrative orders at state level in their entirety.

The law texts can be called up either by means of a menu or by using F9 on the function keys, which calls up a search menu. The search is quick as most of the key terms have been pre-identified. The retrieved documents may be printed out (F8) or may be saved via an export function in one's own word processing program. Again after leaving the legal database the user is taken back to the page from which he started.

V. Summary

The EDITION UMWELTRECHT information system and tutorial program provides a graphic supported user system with a multi-level parallel structure for public administration, the business sector and the education and training world, incorporating a page orientated research and retrieval system (hypertext), and direct access to databases.

The program is aimed at the requirements of those in education and in the professional field, who have to deal with the legal side of environmental protection. It allows for a step-by-step entry into the legal aspects of water protection, waste disposal, air and noise pollution and into the environmental liability law, even for the layman.

At the work place the system provides for an inexpensive and effective tool for the professional environmental lawyer for obtaining current information quickly and concisely. The speed of the program in retrieving data and graphics enables businesses, consumer advisors or lawyers to call up information, for example, during a telephone conversation with a client requiring advice. In the education and training Field the system is like a mobile professional reference library and for self-study the program serves as an experienced house-tutor, before and after or, instead of, further training courses. The program can naturally be used at the place of work, too. As a consequence of the program's double function as a tutorial and information system, it can be effectively used as an in-house training system wherever needed, at work or in a university.

Four years of practical experience working with the program, which has been closely monitored and evaluated, has shown a very high level of acceptance by users from all fields. The following graph clearly shows the various user groups including universities, libraries, businesses such as Volkswagen, IBM, Henkel, Continental, Unilever, Shell, as well as engineers, management advisors, umbrella organizations and the public administration responsible for the environment at all levels.

The very positive response to the Edition UMWELTRECHT is encouraging and is a signal to use the experience gained to develop more tutorial and information systems in other legal fields.