

# Impact of Internet on Official Statistics: Users' Opportunities

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## 1. Introduction

Development of high-quality official statistics, based on common standards that link national statistical systems, is one of the prerogatives for efficient functioning of modern countries and international integrations. International and supranational organisations have been paying considerable efforts to appropriate training of professional statisticians in Europe and worldwide.

However, the initiative of training wider (non-professional) audiences (e.g. students of business and economics, students of social sciences, government officials, researchers and analysts both in private and public sector etc.) has been left to the countries themselves. The topics dealing with official statistics have been seldom included in the degree study programmes within the formal educational system.<sup>1</sup>

To fill this vacancy, the Course on European Economic Statistics (CEES)<sup>2</sup> was developed at the Faculty of Economics in Ljubljana/Slovenia (FE) with the help of the consortium of partners. The main objective of the CEES project was the development of an original course module on official statistics covering the field of economics for non-statisticians at the higher education level, taking into account recent developments of Eurostat statistics and deploying ICT (Information and Telecommunication Technology) in order to improve the quality of the learning process and increase users' access and understanding of official statistics.

The prevailing idea was that the course on economic statistics by its very nature (focused on the appropriate use of large scattered decentralised databases diversified by various aspects, e.g. by users, contents, type of data, media etc.) could profit substantially from the creative use of ICT. In our view, the use of ICT can increase the quality and efficiency of the course in three strategic areas:

- extension and deepening of users' *access to information*,
- increase in the *flexibility* of the exploring and use of official statistics;

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<sup>1</sup> Exceptions include e.g. Germany, Italy and Slovenia where methodological issues have been traditionally covered in university courses of Wirtschaftsstatistik/ Statistica Economica/ Ekonomska Statistika.

<sup>2</sup> The consortium also included Faculty of Electrical Engineering from Ljubljana/Slovenia, Faculty of Economics and Business Administration from Sofia/Bulgaria and the Training of European Statisticians (TES) Institute from Luxembourg. The project was financed by the Phare Programme for Multi-Country Co-operation in Distance Education, Course Module Development Project CEES, Contract No. ETF/97/VET/0068.



Each cell in the matrix represents a basic html unit. If necessary, some cells can be further divided into new html pages or can be left empty. Each html page can contain *several types of links*: explanations and cases within an html page (in the so-called “pop-up” window); internal links (links to pages within the course) and external links (links to other web-sites).

Matrix course structure also provided transparent basis for creating and implementing several navigational tools (study map; two-level contents; pre-selection of study content by tutor; pre-selection of study content by user).

Efficient implementation of ICT according to specific requirements of CEES required the development of specific functions and creation of an appropriate user’s interface. Optional functions are organised into five menus: Topics, Study, Tools, Communication and Help. The first four menus are related to CEES strategic areas: access to information, integrative study approach and flexibility of study delivery.

Figure 2: User Interface as adapted to Strategic Areas

LEARNING OBJECTIVES/ ACCESS TO INFORMATION		INTEGRATIVE APPROACH	STUDY DELIVERY	HELP
COURSE/TOPICS	STUDY	TOOLS	COMMUNICATION	
Objectives	Progress	Calculator	E-mail (Tutor)	General
European Standards	Evaluation	Search	Usenet	System
National Application	Study Profile	Notes Editor	Notice Board	Course
Activities	Personal Profile	Written Notes	Videoconference	Bugs
Resources	Notice Board	SAQ		
Links	Administrative Office	Statistical Methods		
		External Library		
		External Links		

### 3. Pilot Delivery and Main Evaluation Results

The course development phase of the CEES project was finished in the beginning of 1999. The CEES course is an integral university degree course consisting of about 300 pages of text split into 15 topics (or 315 html pages with about 1500 external and internal hyperlinks) in three languages (English, Slovene and Bulgarian), available on different media (in print, on a CD-ROM and on-line). The course can be delivered in different formats thanks to its flexibility in terms of the media used, modularised structure of contents and different types of support embedded and thus applicable for different target groups.

The CEES pilot course delivery was carried out in February and March 1999 at the University of Ljubljana/Faculty of Economics and at the Faculty of Economics and Business Administration, Sofia/Bulgaria, as a part of a regular undergraduate university programmes. The course was run in two different delivery formats: in a traditional distance education format (for around 60 Bulgarian students and 115 Slovene students) and in a virtual classroom (for 10 Slovene students).

The pilot delivery was followed by a comprehensive formative and summary evaluation based on students’, tutors’ and independent external experts’ participation.

The main findings of the evaluations are the following:

- Students were very motivated to embark on a new way of study, but their insufficient skills for independent study and use of modern information technology forced them to rely heavily on the

pedagogical support; consequently teacher-student interaction by various communication means was improved, but teachers' workload also increased.

- Learning process based on hyper-media imposes new pedagogic concepts and new operational criteria for students' assessment.
- Development of an on-line course is not a finite action, which is terminated by installment of the course on Internet. The Internet dynamism itself requires continuous upgrading and updating of an on-line course. The rigidity of a traditional university heavily jeopardises these newly emerged tendencies and needs for flexibility.
- On-line learning makes life-long learning easier and more feasible. The concept of a life-long learning is of a special importance for statisticians and users of statistics because of constant changes and updates of professional knowledge and expertise, induced mainly by permanent technological progress and harmonisation processes in the field of official statistics.

#### **4. Conclusion**

In the information society, knowledge is power. However, traditional teaching and learning processes are rigid, inflexible and usually very expensive. New technologies make them more productive and at the same time also more flexible with significantly different cost structure. Extending and deepening sources of information, on-line study courses open promising alternatives to traditional study courses in many areas of expertise – also for official statistics.

However, compared to traditional educational programmes, an on-line course is much more complex and demanding in terms of its development procedures. An appropriately designed on-line course enhances the complexity of an educational product because it integrates various educational services (e.g. self-developed study materials combined with outside on-line sources, administrative and study support services etc.) into one integral product mix. Thus, it brings to users more flexibility in terms of contents, time, pace and place of its use. The integration of various educational functions into one product makes the quality aspects of educational process more transparent and open.

The CEES development revealed also rather diverse policy of Internet implementation by main providers of official statistics. On-line dissemination of official statistics is mainly in its initial development stage. For thorough future exploitation of the ICT advantages in the field of economic statistics, systematic and cooperative research efforts of academics, professional statisticians, information technology experts, and users are needed.

#### **REFERENCES**

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## **Résumé**

*Le développement de la statistique économique de haute qualité, basée sur les standards courants qui lient les systèmes nationaux statistiques, est l'une des prérogatives de fonctionnement efficace de l'Union Européenne. Eurostat a fourni des efforts considérables pour la formation appropriée de statisticiens professionnels dans les pays de l'Union Européenne, de L'Europe du Centre et de l'Est. Cependant, l'initiative de former les groupes non-professionnels (par exemple les étudiants en économie ou en sciences sociales, les offices gouvernementaux, les chercheurs et analystes des secteurs public et privés, etc.) est laissé aux pays eux-mêmes.*

*Pour remplir cette lacune, le Cours de Statistique Economique Européenne (Course on European Economic Statistics - CEES) s'est développé à la Faculté d'Economie de Ljubljana/ Slovénie depuis octobre 1997 avec l'aide d'un consortium de partenaires.*

*Dans cet article, les procédés de préparation et de développement du cours sont décrits. Comme le cours a été donné en février et mars 1999 pour la première fois, les auteurs étaient capables de présenter les leçons acquis qui s'avèrent importants pour la le développement et le usage de nouveaux cours sur Internet.*