The influence of the Information System on administrative processes at the University of Latvia

Janis Stonis, Administrative Director, University of Latvia, Laila Niedrite, Project manager, University of Latvia and Aivars Niedritis, Project manager, University of Latvia

Abstract: *The goal of this paper is to describe how the development, implementation, and deployment of Information System of University of Latvia changed the life of the University and faculties. It has become possible to define and implement the workflow in separate administrative processes, e.g. the flow of electronic documents from one division to another and new students admission subsystem, which allowed to regulate the students applications in the whole University, but not in individual departments as before.*

Legislation related to the higher education in Latvia

First we should mention legislation related to the higher education (HE) in the Republic of Latvia. The key laws regulating HE are as follows: 'Law on higher education establishments' passed in 1995 (revised in 2000), and 'Frame Law on Education' passed in 1998. Regulation of HE is referred to also in the 'Law on Professional Education' passed in 1999 and other laws, for instance, the law 'On Scientific Performance'. Apart from the laws mentioned above, there are also a lot of secondary acts regulating the HE in Latvia. However, the above mentioned acts are in many ways contradictory.

The Law on Higher Educational Establishments provides sufficient autonomy for HE establishments, including curriculum design and choice of the form of study, enrolment conditions, and basic areas for research work. A large number of issues remain the responsibility of the HE establishments themselves. It may seem ridiculous that the government gives us money (which is insufficient, of course), but they do not say what we should do with this money. Therefore, we should be happy, but, strangely enough, we are not.

Speaking about legislation, we should mention the Latvian educational concept adopted in 1995, which, however, has small reference to HE. The Strategy of HE was elaborated in 1998, but the government did not approve it. A new Draft HE Strategy has been presented during the last two months. This Strategy offers various alternatives, including drafting of a new Law on HE.

Unfortunately, pell-mell improvements do not bear the desired fruit and it causes a sense of instability in the whole educational system. Therefore, a strategic and methodical approach to the further development of HE would be necessary, which would ensure stability at HE establishments and facilitate organization of their work.

Legislation in Latvia allows operation of both public and private HE establishments.

Studying at a State HE establishment can be financed both from the State budget and from tuition fees. At the moment, the students are able to get 2 kinds of loans: maintenance loan (about 60 USD) and the tuition fee loan. The state budget covers both loans. The government has established a working group in order to work out a model that would enable students to get State-guaranteed study loans from banks.

Quality criteria are equal both for the public and private HE establishments. Private HE establishments could be split into two groups: the licensed and accredited HE establishments. Licensed, but not yet accredited HE establishments do not guarantee that students will receive State-recognised diplomas. In total, there are 33 HE establishments in Latvia, 14 of which are private. As shown in the diagram below, student distribution by HE varies a lot. Nearly one quarter of the students are LU students.

Special attention should be drawn to the fact that the number of university students has significantly increased over the past decade. As we can see in the diagram, the increase is due to a bigger number of tuition fee students. 67% of all students pay tuition fee. The number of state budget students has actually not changed, but the number of self-paying students has increased more than 4 times. The increase is basically caused by the willingness to study social sciences (business, law, economics, psychology) and foreign languages. This may certainly be explained by the fact that market economy is continuously developing and the above spheres are interesting and more available in the labour market. On the other hand, we also have to take into consideration that due to the growing unemployment (it is about 9% in Latvia) people feel safer at a HE establishment than on the streets. However, we believe that changes in the scale of values play a key role here. Taking into consideration the demographic situation in Latvia, the number of secondary school graduates is going to decrease in the nearest 7 years, reaching the minimum in the year 2007. Therefore, we can expect a decrease in the number of HE students. The HE establishments are to be ready to face this period by introducing changes in their marketing: the stress is to be laid on the post-graduate study programmes.
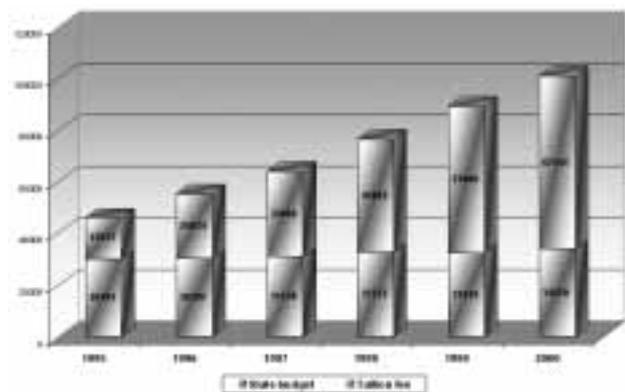

Figure 1: Changes in the number of students in Latvia 1995-2000

The administration of higher education.

In fact, 3 institutions should be mentioned here: the Ministry of Education and Science, the Council of Higher Education and Rector's Conference.

The latter, taking into consideration inter-competition and contradictions, does not play an important part in administration of higher education (at least not till now).

The most important institution, no doubt, is the Ministry.

We must take into consideration a number of aspects:

- Comparatively large autonomy of HE establishments,
- The Ministry has no strong traditions in HE administration,
- Frequent change of Ministers, etc.

The Ministry has quite formal opportunities to perform extensive HE reforms and poor bases for systematic administration of HE. We should say here that there is lack of uniformity in the HE in Latvia, due to both the large number of HE establishments and subjection to several Ministries (These Ministries are: the Ministry of Agriculture, Culture, Home Affairs, Defence, and Welfare). The Ministry of Education and Science is mainly responsible for co-ordination, licensing and accrediting.

The Council of Higher Education is a new institution in the Latvian HE administration and, at present, it has not yet strengthened its position in the administration system. In our opinion, the HE administration requires a professional agency. Unfortunately, until recently, the Council of Higher Education has been an institution, where some 'good and clever people gather for a couple of hours to have a cup of their afternoon coffee' and decide on topical HE issues, without being experts in the field. It is essential to have a professional agency that has a link with society.

There is a quality assessment mechanism introduced by the Law on Higher Educational Establishments, which is an important instrument to be considered. This process has just been started and is going to be improved in the nearest future. It is managed by the HE Assessment Centre. The main components of the assessment mechanism are: internal evaluation resulting in self-assessment reports, intermittent evaluation by external experts, partially based on the establishment's self-assessment findings, publication of evaluation-outcomes including recommendations for improvement, implementation of the recommendations and assessment of the appropriateness and effectiveness of the quality assurance methods and procedures (meta-evaluation). The problem that still remains to be solved in this process is financing this Centre, as at present it is actually financed by the HE establishments themselves.

Here is a brief account of the state of affairs at the University of Latvia (LU). The situation is, in fact, very similar: the number of state-budget students does not exceed 18% of the total number of students; a large number of faculties (13 altogether, with 10,000 students at the bigger faculties, whereas the smaller faculties have only 200 students), the administrative structure being dispersed and double functioning.

The Information System of the University of Latvia. Information availability and exchange.

In 1996 the University of Latvia started developing its own information system, investing own money in the project. The situation at that time could be described as follows: individual departments were using local databases in the local networks, which, in their turn, were not linked or structured; the administrative personnel having poor computer skills. At the stage of the first interviews and project planning a lot of contradictions arose, alongside different approaches to solving the problem offered by different departments and individual faculties. The democratic circumstances of the early 90s led to such level of decentralization, about which some western European universities are still dreaming; the problem, however, being that a lot of things were decentralized, except responsibility. During the period from 1996 until now, a number of internal university administrative acts have been developed, outlining unified working principles within the university, and this process continues. Quoting the words of our rector Prof. Lacis, who used to be the director of study programme, "LU information system will teach us to be human" , which means that the university has common objectives and interests, and not only the interests of individual programmes of study. By the results of the process analysis carried out during the LUIS development, in the year 2000 the rector created the position of LU Administrative Director, who had to continue a scrutinized analysis of the management process, create a programme for the improvement of management. In February 2001 the programme containing development objectives, including the changes in the administrative system, for the period till 2007, was given for consideration to all university departments.

The IS is based on an ORACLE database and Oracle Application Server. The system is installed on SUN Enterprice 250. VeriSign Secure Server ID is used to make Internet connections safe. The client workstation should not have any special software. The client only needs Netscape or Internet Explorer and a connection to the Internet. The LU faculties and other institutions are housed in many buildings, the longest distance being 15 km. Apart from the implementation of the IS the information accessibility and exchange between the divisions is provided. It has become possible to define and implement the workflow in separate administrative processes, e.g. the flow of electronic documents from one division to another by means of the IS.

As an example we will look at the administrative documents related with student scholarships. Faculties prepare the drafts of these electronic documents (Figure 2), which include information about the students, and the faculty staff should only enter the amount of money into the document.

Figure. 2: The preparation of the draft of an electronic document in the IS

After finishing this process, the document draft is available at the finance department, which controls the total amount awarded and can, if necessary, reject the draft or accept it. The rejected draft can be corrected by the faculty. The accepted document is then accessi-

ble in administrative office, where it will be registered and printed. The workflow ends with making export files with student names and scholarships which are sent to the banks. The faculties can follow the whole process and see, in which phase the document is, and when the students can get their scholarships. The information about scholarships - the final result but not the process- is also available to students, but only about themselves.

For other categories of electronic documents the workflow may be different, for example, only one accepting institution. In all cases the electronic documents are made with a general-purpose IS subsystem for preparing the documents. The IS developers can easily define a new type of documents in this subsystem, the workflow for the new type. The advantage being that the users who are familiar with the IS interface for one type of documents can easily adopt the new ones.

The use of the IS replaces the paper document exchange and significantly speeds up the task execution time. Another advantage is that the functions of responsible departments are now more correctly executable, e.g. the finance department can control the total sums directly in the IS, in electronic document preparation process.

Similarly, the student tuition fee loans assignation and the student enrolment are made. As a result, full information about the students is collected, and the faculty staff always have accurate information about students.

Changes in the student admission process

The student admission subsystem has allowed to regulate applications in the whole LU, and not in individual departments as before. In their application forms students can indicate four study programmes and their order of priority. Applicants are registered by the LU Studies Information Centre in the IS and then get the document which contains all information about the entry competition examinations, their time and venue for a particular student, according to the programmes indicated in the application form, printed out from the IS. Drawing on the entrance examination results and the preferred programmes of study, the entry competition algorithm by the IS nominates the accepted students. The students can only be accepted for one programme. After the acceptance the student has to go to the appropriate faculty and register for the first year of study.

The admission process takes place at the University main building: the students do not have to go to fill in the application forms at each individual faculty as in previous years. However, the faculties immediately have the information about the applications. Formerly, the University of Latvia did not have the possibility to control, on how many programmes a student has enrolled, and it was not allowed to enroll on more than one programme of study.

The IS has helped optimize the admission process and localization, and has made it possible for students to apply for four (at the most) study programmes.

Faculty independence - its influence on the study process and IS implementation

During the interviews conducted while developing the IS, it became obvious that the students enrolment on study courses, the organization of examinations depends on faculties. We tried to reconcile the real situation and the administrative documents regarding these processes. The IS subsystem has been developed, which comprises the following three steps: the student enrollment on study courses, the examination organization and collecting/entering the examination

grades in the IS. For the faculties, the most difficult part in this was the preliminary tasks, which have to be done before enrollment, e.g. entering the up-to-date information about study courses, credits, teaching staff. The objective for creating this subsystem was to implement the ECTS and Diploma supplement at the University of Latvia. The preparation of Diploma supplement using the IS will be implemented this year.

The organizational changes are necessary, but this is also the faculty's own responsibility. These contradictions were a springboard for the LU administration to develop management development principles, part of which being creating professional university management as well as faculty management. For example, apart from already existing position of the dean, whose main responsibility is academic process, the post of faculty director will be created, whose responsibility will be the faculty's administrative work.

On the contrary, the tasks centralized departments are responsible for can be implemented in the IS more successfully. This year, we are developing a new diploma register. This subsystem will be implemented in the whole University by the graduation examinations this year.

From the beginning of LUIS implementation the project group had to provide training in computer skills for the end users. The total number of trainees exceeded 100 university staff members.

The IS support in decision making

During the four years of the IS development and implementation process a large amount of various data have been collected. It has raised interest of the management and has given possibility to find out new solutions for analyzing data and making it accessible to the managers. We also have a subsystem of statistical indicators, based on Data Warehouse ideas. The faculties complete the functions, which compute the indicators from operational database information. The indicators are stored in IS and the University level statistics are computed. For managers a set of reports about students statistics, admission results, employees, etc. is provided.

LAIS - a new stage in the Informatisation of Latvian Universities

The development of Information System for Universities (LAIS) is a part of the Latvian Education Information System (LEIS) project, started in 1997. The first stage of LAIS was the Information System of Higher Education (ISHE), which was designed to meet the statistical needs of the Department of Higher Education of the Ministry of Education and Science. LAIS was designed to improve university management and study process and LUIS was used as basis of LAIS. It was necessary to analyze and compare the differences in the organization of the study process with other universities and implement them. We have visited Daugavpils, Jelgava, Liepaja and some other universities in Riga to find the necessary functions which were included in their existing systems, mostly FoxPro based.

The first LAIS version for other Latvian universities was installed in May 2000, now there are 6 Universities using LAIS.

There are two installation possibilities: with the central server or a local server.

The University of Latvia is using powerful hardware which would be available for other Universities as well. The University of Latvia has unlimited Oracle licenses for making connections through the Internet. Therefore, if a university does not have its own hardware and software, they can obtain a connection to the Central Server

and use it. At the moment a number of Universities have agreed to use the Central Server. Another possibility of LAIS implementation could be the Local University Servers, usually having NT with Oracle and Oracle Application Server installed. LAIS software will be provided, but the server, licensing and system maintenance will be the responsibility of a particular University. Only one university uses a Local Server. Others are using the central server due to rather big maintenance expenses.

LAIS features

LAIS has several specific features allowing to use it in universities with different needs. The main feature is user parametrisation. For every user a set of specific system functions and a set of restrictions are defined, allowing access to specified information only, for example only one programme student data. All users have their own menus with their set of functions. If many university users are working in the same database, for example on the University of Latvia Central Server, they cannot have access to other university data. Some data are shared by all universities, e.g. codificators. The administrator can define which codificator element they wish to use.

The first version of LAIS includes several functions:
1. Course register, programme register, curriculum design
2. Processing of application forms
3. Student information search and processing
4. Student report processing, statistics
5. University staff subsystem

These functions have been developed on the basis of previous LUIS versions and include some specific elements used by other universities.

Another important LAIS feature is multi-language user interface, it is possible to add new languages without changing the software. We have used Latvian and English, but now we also have a Lithuanian

version, due to the interest of Vytautas Magnus University (Lithuanian). Data are saved in the original language, whereas the language of menus, descriptions and codifications can be selected.

The second version of LAIS has been implemented in universities since January 2001, including such functions:
1. Enrollment for courses, examination grades processing
2. Tuition fee processing
3. Preparation of Statistics, for self-use and the Ministry of Education and Science
4. Order processing register

Before offering these functions to other universities, they had been tested and implemented at the University of Latvia.

Future plans

LUIS (LAIS) further activity might be dealing with the following
● a unified national system for secondary education examinations and university entry examinations;
● smart card implementation in the university services;
● coordinating university database with other establishments.

References

1 Overview of the work of Latvian higher education institutions in 2000, Riga, IZM, 2001
2 M.Treimanis, A.Andzans, I.Medvedis, U.Straujums"The Latvian Education Informatization System", Abstracts of papers from Baltic IT&T'98, Riga
3 A.Niedritis, L.Niedrite"Latvian University Information System", Proceedings of EUNIS'98, Prague
4 A.Niedritis, L.Niedrite "Latvian University Information System security aspects in different application environments", Proceedings of EUNIS'99, Helsinki