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Peculiarities of IT Management

at Institutions of Higher Education

> If we managed our finance like we manage the information, many of us would have turned bankrupts long ago.

Most Heads of institutions of higher education, especially in present-day conditions, come across many complicated questions of the effective use of informational technologies in the University management. More than a 15-year author's experience enables him to distinguish the main of them:

- Does the use of information technologies (IT) lead to the raise of competitive capacity of an educational institution?

- Do Vice-rectors, Deans, Heads of departments and other organizational units of higher educational institutions realize their responsibility for the efficiency of management and use of information technologies or consider that the employees of IT Department only must be engaged in information technologies?

- Are the investments in IT mentioned for strategic priorities of a whole higher educational institution or university resources are expended on different tactical initiatives, in other words inappropriate use of funds is observed?

- How and by whom the standardization of basic business processes was conducted at the institution of higher education?

- How IT are used in the business processes of a higher educational institution?

- What degree of corporativity is there in IT management and use?

- What indirect effect do external organizations, institutions, funds have on the decisions adopted at the university?

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Ü Are there mechanisms which make taking decisions at a higher educational institution maximally clear and opened for society?

It's possible to ask very much similar questions. But summarizing them all, everything is reduced to the main question – is the Administration of an educational institution satisfied with the results of investing in IT?

In this sense investments in IT is akin to investments in advertising – "we understand that a half of such investments is justified, but do not know exactly which of them".

A university is a big and complex system which manages many various resources, such as:

1) human resources;

2) financial flows;

3) material assets;

4) immaterial assets, including intellectual property;

5) mutual relations between students and the teaching stuff;

6) cooperation with different external organizations, including fiscal.

Thus the information and technologies, by means of which it is it accumulated, saved and spread, can break the work of a whole system. The requirements of both the system of education, which trains specialists, and the labour market, supplied by its specialists, change constantly, while the systems themselves on the contrary remain relatively immobile. The specific of IT use requires attracting of significant advance and current investments to get the results, which can not be exactly defined beforehand. Such uncertainty and difficulties that rise make many of chief managers give up their duties in providing of effective IT use by the employees of their institution of higher education.

For along time many universities of Ukraine achieved success in spite of insufficiency of the IT use in the management process, although these technologies were public already. It can be explained by monopolistic position of higher educational institutions at the market of educational services. But the information and therefore IT become more significant elements of the product or service of any organizational unit, and also of the base for businesses processes of production.

Close connection between information technologies and organization of different processes means that the IT department alone can not be absolutely responsible for the efficiency of use of information and information technologies. The ability of getting greater profit of IT use becomes more important organizational factor, and the chief managers must develop it at all levels of a university.

In this article we suggest to use a term "value", as a basic criterion of operating benefit of a higher educational institution. In this regard we understand, that there is a great difference between a value, which is created by commercial and nonprofit organizations to which higher educational institutions belong to. Rating of educational establishment will indirectly determine the value of future specialist, trained in this institution. Namely, the starting salary that society is ready to pay the graduating student of a particular educational institution. In this context we lean, in our view, on the most successful five-factor model of Michael Porter - determination of value of commercial companies and the model of Mark Moor for non-commercial and state organizations. It is important to note, that while the model of Michael Porter takes into account such factors as a competition, users, suppliers, substitute goods and future clients, the model of Mark Moor is based on ideology of the authorized environment organization, which it is shown in Fig. 1.
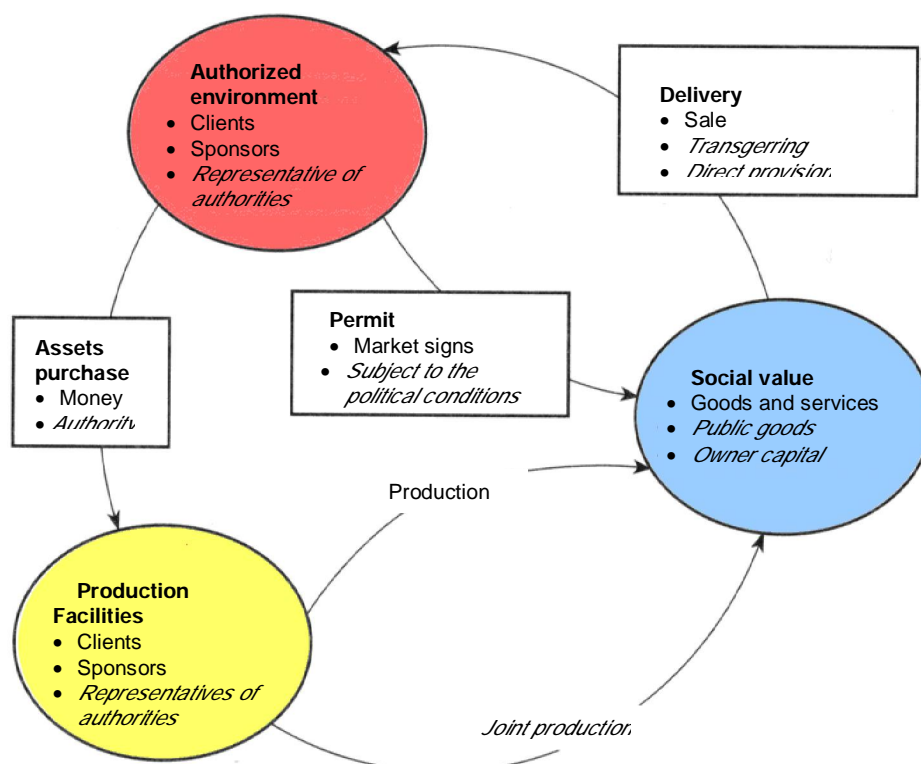


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Fig. 1. Structure of value for the management of nonforprofit organizations

This particular model introduces the concept of social value which is of an amorphous nature for many, including those who have power. And considering the fact that institutions of higher education train specialists who can in future create a new value in other region and even in other country, determination of value which is created by a particular institution of higher education for the present moment and the efficiency of IT management at universities has a very uncertain state. However, in the conditions of intensification of processes of globalization and association of the European countries a serious compensate mechanism of returning the resources which are outlaid on higher education back to the regions is redistribution of finances through the centralized funds, including both budgets of various countries or their  associations and grant facilities. And that allows hoping on development of a new mentality of regional elites, able to see institutions of higher education not as system consuming, but as investment area of production of the nation strategic resource.

The last reasoning gives us a possibility to consider that institutions of higher education can take the criterion of increase of value of public services of Moor's model, presented on Fig.1, as a basic criterion of determination of efficiency of information technologies management.

Researches of Massachusetts Institute of Technology Sloan School of Management under the [1] show that the companies, which have the highest productivity indicators, get profits from investments in IT by 40% more than their competitors. These leading enterprises are actively searching the methods of value creation on the basis of the IT use.

In such context, there are the followings requirements to universities, which are planning to manage information technologies effectively:

−      to form a clear view of the own strategies of educational services providing and the role of IT in their realization;

− to typify the own business-information as much attentively as it is possible and keep to the strategies of work with it [2];

− to be the utmost open both from within, for the students and tutors, and outside, for the future students, tutors, authorities, labour market and all the other interested persons.  In other words, the more openness, the more value. And this aspect, first of all is provided by the effective IT management, as there must be assured such factors, as actuality, certainty and safety of the corresponding business information;

− to keep record of facilities which are outlaid on IT, manage these facilities and value which is gained from IT;

− to distribute responsibility for organizational reassignments, that are necessary for a successful use of new possibilities of IT;

− to learn by experience of every specific case of IT management and become the supporters of the compatible and repeated use of IT assets.

The results of researches, represented in the scientific paper [1], show that due to the effective use of IT management for realization of their strategies some prosperous enterprises reach successes meanwhile other organizations meet with failure. For example, incomes of the companies, where IT management is hold on certain strategy (such as an individual treatment of a client) are by 20% higher than at firms which realize the same strategy, but their management is at a lower level.

Thus we approach to determination of concept of IT management, represented in [1]. In our view it is something unusual, but gives a mighty instrument for acceptance of specific steps in IT implementation for the increase of value of any institution regardless of the form of its organization.

IT management is determination of a right on decision taking and boundaries of responsibility for stimulation of the desired conduct in the process of IT use. IT management refers not so much to the process of taking specific decisions in IT — management is engaged in this, — but determination of those, who systematically participate in taking these decisions.

IT management is a reflection of more wide corporate principles of management and is concentrated on the questions of IT management and use for

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achievement of corporate objectives in efficiency upgrading. The effective IT management stimulates and directs the employees' skills of IT use, and provides accordance of their handling with IT to general strategy and values of a higher educational institution. However, everybody must remember about importance of the role, which Heads of faculties, departments, auxiliary departments, and also IT organizational units play in determination of processes of IT management — the role, which finally determines a value that is created by a university as a result of information technologies use.

We wish that or not, but today IT management is conducted in all the enterprises and institutions. Enterprises with an effective management are distinguished by the active  performing a set of devices of IT management (committees, processes of budgeting, conditions for approval getting), which contribute to building of the conduct, which answers a purpose, strategy, values, norms and culture of organization. On such enterprises IT can become the essential factor of development of competitive strategy. Certainly, we understand that monopolistic position of a number of universities does not enforce solving this problem. But life is in a highly developed society, with the market of technologies and knowledge, that changes intensively, will compel all the institutions which work at the market of education to solve a problem of competitive pressure.

In the conditions of dynamic change of market and structure of educational services, strengthening of requirements to quality of training of specialists of higher level the development of competitive strategy is one of foreground objectives in a university activity. Redistribution of responsibilities, appearance of new decision making mechanisms, including of external objects into the internal structures of an institution of higher education cause the change of standards of corporate behaviour of tutors and students. In such complicated and ambiguous conditions an effective IT management allows to make realization of new strategies of a university development quick and appropriate, depending on the public demand. For example, considering of higher educational institution a corporation of maintenance of students' educational interests, allows to change accent of the university activity from a simple transfer of certain knowledge from a tutor to student, to creation of

environment, which provides effective possibilities for the teaching stuff to develop necessary informative resource and almost unlimited possibilities in communications on one side, and on other side, provides any student with the possibility of use of all the information and communication resources created by the institution of higher education for satisfaction of his own intellectual wants in any convenient time.

As a result the code of the desired conduct of all of subjects that realize their activity in the university must be changed. And certainly, it is necessary to stimulate new principles of conduct be means of management, including budgeting of a whole higher educational institution in accordance with the requirements of IT.

It is important to understand that conducting of inconsistent IT management policy can cause not only financial loss but also a mental harm in realization of the business strategy of IT integration into the activity of an institution of higher education. Furthermore, it should be remembered that that the universities which do not have monolithic model of IT management should rely on Vice Rectors concerned in IT, who can solve the problems by means of mostly tactical steps, than by positioning of IT as a strategic asset.

From all has been said it follows, that IT management today appears as a strategic resource of development of a modern higher educational institution. Thus the competitive advantage of universities will be determined not simply by the availability of effective mechanisms of information resources collection and processing and giving access to them to the students, but also by the skill of transforming them into the corporate knowledge. Such systematic approach to IT management of all others enables to get strategic advantages illustrated in the following table:

Strategic Advantages of the Effective IT Management

| UNIVERSITY OBJECTIVES | METHOD OF REALIZATION |
|---|---|
| Growth of spectrum and quality of educational | Publication of information resources on the university web portal, their regular |

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| services | updating, on-line intercourse of students and teachers |
|---|---|
| Enhancement of the efficiency of educational process organization | Giving the students an access to educational information resources for qualitative improvement of individual work |
| Realization of financial transactions | Complete automation of salary and scholarship accounting, their transferring to the personal bank accounts, payments for dormitory accommodation, etc. |
| Increase of contingent of students | First of all due to the use of the distance learning technologies |
| Improvement of the learning environment | Organization of the network access, including radio-Access point, in educational buildings and dormitories, both to external and internal information resources of tutors and students |
| Use of the modern training technologies | Due to realization of technologies of learner-centred approach to training |
| Realization of on-line and off-line advertising | Placing of all of the necessary current and reliable information about the admission requirements, training, accommodation conditions, leisure facilities on the web portal of the university |
| Increase of competence | Use of integrated, corporate, personified information and analysis system of businesses processes management at the |

| | university |
|---|---|
| Improvement of scientific researches | Creating of electronic mail service for tutors and students, quick and timely access to necessary informative resources of other institutions of higher education, etc. |

Thus an effective IT management must be focused on a solution of the followings main questions:

1. What decisions must be approved for providing of effective IT management and use?

2. Who must take these decisions?

3. How will these decisions be realized, and how the control of their implementation will be carried out?
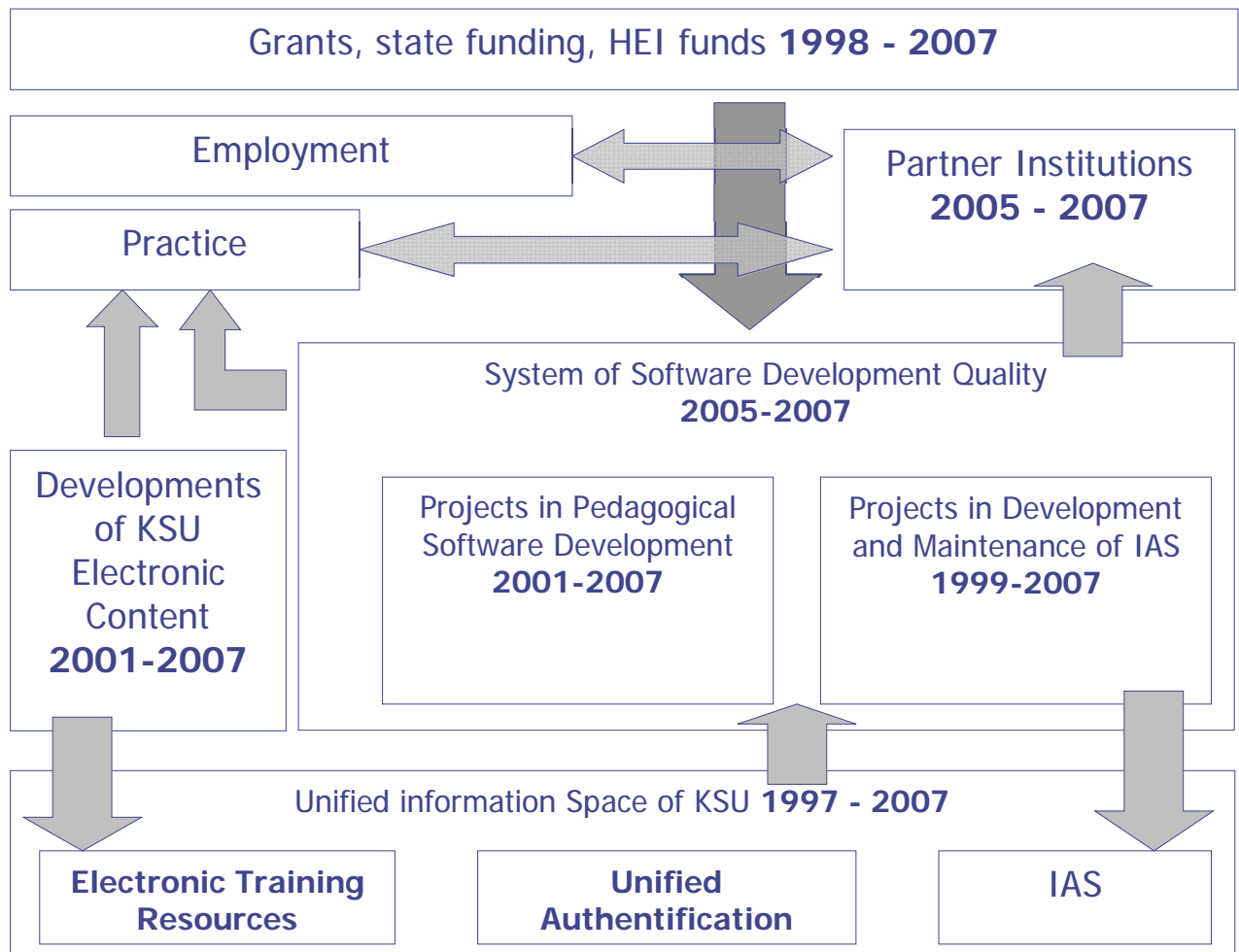


Fig.2 Development of IT infrastructure of Kherson State University

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As an example of building of modern IT infrastructure at institutions of higher education let us take a look at such infrastructure at Kherson State University (Fig. 2).

In 1997 it was accepted a principle decision about the building of modern IT infrastructure – single information space of KSU by forces of the specially created IT Management Department of KSU. Primarily the first version of the information and analytical system of university was developed at own University expense. Beginning from 1999 the development of IAS was funded by European Union (grants of Tempus – Tasis program). Due to the grants of Tempus – Tasis program the resource base of IAS and the whole University was improved qualitatively. From then the IT Management Department began to work over  development of similar IAS in a few other institutions of higher education of the country, and that made it possible not only to attract extra funds but also attain subsequent development of the own IAS.

In 2001 the development of pedagogical software (PS) which was carried out on the Chair of Informatics got a special target state financing as a pilot research project within the program of Informatization of country schools of Ukraine. A specialized research laboratory of the development and implementation of pedagogical software was created. Implementation of scientific and technical developments on PS creation made it possible not only to upgrade qualification of tutors of the Chair but also to start training of students for getting specialist's and master's degrees in Informatics.

In 2001 the work on creation of a modern system of management of the electronic educational resources of KSU began. On the first stage of this work it was also carried out a pilot scientific and technical development of the specialized Department of Distance and Multimedia Technologies of Training. Beginning from 2005 University Administration has taken a decision about creation of the web portal of electronic educational resources of KSU. The development of electronic content was entrusted to the departments of University. It gave a possibility to upgrade the qualification of the University teaching staff, engage the

best research workers and methodists in this work, and also to begin implementation of modern information and communication technologies into the educational process within the University.

With the purpose of concentration of researches in the field of IT on the base of   Departments the Research Institute of Information Technologies of KSU was created in 2004. The problem of upgrading software development came up and was solved by creation of the system of software development quality. These works were to a great extent financed from the resources of one of the projects within Tempus-Tasis program.

All of these efforts led, in particular, to improving of the quality of   -specialists training on the Chair of Informatics. So the problems of teaching modern applied information technologies were solved. The best specialists of IT Departments of Research IT Institute are engaged in teaching of the applied disciplines of informative course, the students, studying Informatics have their practice on the base of Research IT Institute Departments, the tutors of the Chair of Informatics are engaged in the work of the Institute Departments for the part-time and full-time work. Finally, almost all of final graduate projects of students are executed on a base of Research IT Institute.

The next step in IT development (2005) consisted in the search of partner institutions which could help in solution of problems of graduating students' employment and funding of the financial base of KSU. For that moment the University had already cooperated with two of such firms. It is necessary to indicate that this collaboration allowed promoting speciality Informatics that led, in particular, to the considerable improvement of quality of entrants enrolment on this speciality.

However the present time sets up new problems before KSU and that will stimulate the development of IT.

Summarizing the article, it is possible to say for sure that an inevitability of answers to the questions that rise will determine the position of every institution of higher education in the general rating of universities.

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