

ERP for Romanian Higher Education

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Also most of the big ERP providers provide solutions for higher education, including SAP AG, Oracle, JD Edwards, Peoplesoft, universities prefer other specialized applications which better fit their specific needs. This paper presents the advantages of an integrated solution for higher education and analyzes the solutions offered for this sector by the Romanian ERP market. The conclusion is more like an invitation to discussion about possible solutions to the present Romanian university situation: low budgets, changing regulations, isolated, self-developed applications.

Keywords: higher education, ERP, integrated software solutions.

What is an ERP system

The development of market economy in Romania have brought important changes in the Romanian economic system and IT&C market, introducing integrated software solutions (ERP – Enterprise Resource Planning) that offer a complete solutions for companies by managing workflow, improving efficiency and diminishing process errors.

Radical changes in economic field and development of organization activities require permanent adjustments, and those adjustments are challenging the effort and analysis capacities of the organization. ERP systems were created as a response to these challenges, as they are capable of processing a very large amount of data and aggregated information for the purpose of process optimization.

ERP are client-server applications developed for transaction processing and for enhancing process integration, starting from process planning phase, to the relationships with suppliers, customer or other partners. Before ERP, most organizations didn't offer an integrated system for using and providing necessary data to the activity of various organization departments or units. Those were seen as small "information islands", each of them with its own system, working differently, adjusted to the specific of that department. Most ERP solutions are modular and open, including modules for all the functional areas of a company: financial management, order

management, resource management, supply-chain systems, marketing automation and so on.

Most of the big ERP providers provide solutions for higher education, including SAP AG, Oracle, JD Edwards, Peoplesoft. For these higher education solutions, most vendors have taken a corporate solution and re-fashioned it to respond to the specific needs of academic sector.

Lately, most ERP for higher education are integrated with **portal solutions**, which are first and foremost improving service to ensure enduring relationships with clients, providing a unique and personal perspective over the university to each user. There are many features a portal can provide:

- Distribute content information and communication – digitized library materials, web searching, news, email, etc;
- Education and training –course delivery to distant locations, technology enhanced learning, video streaming;
- Market for selling and buying of goods and services;
- Brand awareness and loyalty promotion

Usually, a university ERP includes the following modules: campus management, distance learning tools and grants management. But there can be much more involved (see Figure 1).

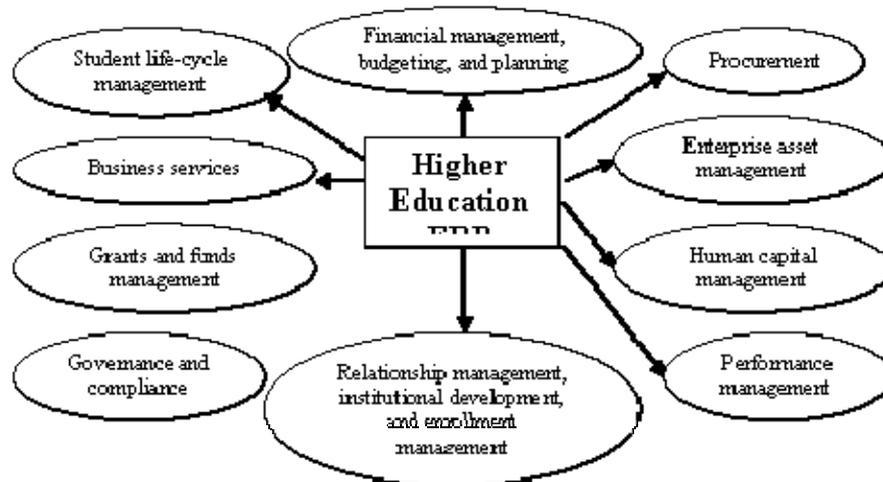


Figure 1: Processes in SAP for Higher Education and Research [SAP]

ERP system producers have rapidly embraced the demands for e-commerce applications, such as online billing, e-procurement, etc [SWA01]. Reporting capabilities are very important as they offer an invaluable support for decision making. Modern ERPs often offer a foundation for moving to a data warehouse that can provide better capabilities for extracting and transforming data.

2. Advantages of ERP systems

The main advantages of an ERP system are:

- Quality information – an ERP uses a unique database, which contains consistent and accurate data and offers improved reporting;
- Adaptability – economic process changes are easily reflected by the ERP system;
- Scalability – the modular structure of the system allows adding of new components;
- Improved response time - the ERP system offers ad-hoc information and reports;
- Reduced reliance on paper and user-friendly web-based interfaces
- The avoidance of data and operation redundancy – the existence of a unique database eliminates repeated update operations;
- Openness for e-business – ERP architecture offers support for new e-business application integration (eg. E-procurement).

But there are also some important disadvantages to consider in deciding an ERP implementation:

- High costs;
- Complexity;

- Time consuming;
- Supplier dependency;
- Non-conformant modules (significant differences from university requirements).

Referring strictly to HE ERPs, their most important benefits are [SAP]:

- Reducing university administrative costs – By integrating all the processes related to financials, operations, procurement, human capital management, reporting, and analytics, ERPs offer a better organized and efficient management which implies an important reduction of administrative costs.
- Unifying information and processes related to students, faculty and staff – Usually, universities and research organizations spend a lot of time and money on maintaining existing infrastructure and integrating heterogeneous systems, leaving few resources for innovation. HE ERP solutions integrate students, faculty, and staff while reducing complexity and cost.
- Better decision-making – this is key to realizing objectives and ERPs provide management with e-business analytics or information that it needs to make decisions or take action, measure that signal and can help prevent future problems, set early warning thresholds, measures of personalized targets that are future dated.
- Meeting compliance and governance requirements – most ERPs allow the meeting of demands for accountability and financial transparency with executive dashboards, alerting and reporting, security and identity

management, content and records management, and workflow and business-process management.

- Promoting relationships – ERP solutions usually offer an on-line interface which has a significant impact over the efficiency of communications with students, faculty, alumni, and suppliers.

3. Vendors and Products on the Romanian Market

From ERP's point of view, Romanian market is still very young. The lack of funds in the

educational system is a major factor of influence in engaging a complete ERP solution, considering the high costs involved not only by its acquisition, but also by its maintenance. This is a major drawback, especially for small universities.

On the Romanian ERPs market there are several locally developed solutions which respond to specific demands of Romanian universities. This paper will focus on four solutions:

	Gesco	UMS	Sicob	Naum
Modules	Student + integration to finance	Student	Finance	Student, finance, HR
Installed Base	6 clients	6 clients	35-45 clients	3-5 clients
Multi Lingual	Romanian, English (future)	Romanian, English, other (future)	Romanian	Romanian, English (future)
Major Car-nagie Seg-ments	Big universities (dozens of thousands of students)	Medium universities (few thousand students)	Public universities	
Content management	Yes	No	No	Yes
Database	SQL Server	Oracle or SQL Server	Progress Workgroup DB	Oracle 10g
Development tools	Microsoft .NET (ASP, Web, XML, C)	Java	Progress Ac-tuate Devel-oper	Visual Fox-Pro 9.0

Table 1. Features of HE ERPs

1. **Gesco** has been provided since 2000 by **Genisoft** (from Timisoara) and it offers student module with some integration to Sicob. It offers support for ECT (European Credit Transfer System).
2. **UMS** has been provided since 2004 by **Redpoint** (from Iasi) and it offers only student module. An important notice is that it has been integrated with SAP from 2006 in Finance and HR and SAP sells in Romania for HE only with UMS. The solution is compatible to European universities, using ECTS Prices are up to 10000 Euros, and there are some optional components.
3. **Sicob** (from **Romsys**), has a special story, its start point being a project called **EMIS (Educational Management Infor-**

mation System), financed in 2001 by the ministry of education and implemented in public universities. The ministry of education financed few licenses, but the implementation didn't finish, eventually, and adding new licenses is expensive for most universities. It provides solutions for financial management of budgeting, research, accounting and payroll.

4. **Naum**, provided by **Naum Consult** (from Bucharest) offers a full ERP solution: financial data of students being integrated with ALOP financial module, student module from 2003, and also HR module. It is compatible with ECTS. Prices are accordingly to modules and university size and there is an option of paying per number of users per

month.

A market research performed in 2006 revealed that the number of players on the market is reduced, and most universities use self-developed solutions. Almost all universities have **financial solutions**, and Sicob was the major vendor for the financial module.

Only about 35% of universities have a **student solution**, but only 15% used it from the four main vendors. Except from Naum, there is no specific vendor for HR module, so most implementations are self developed.

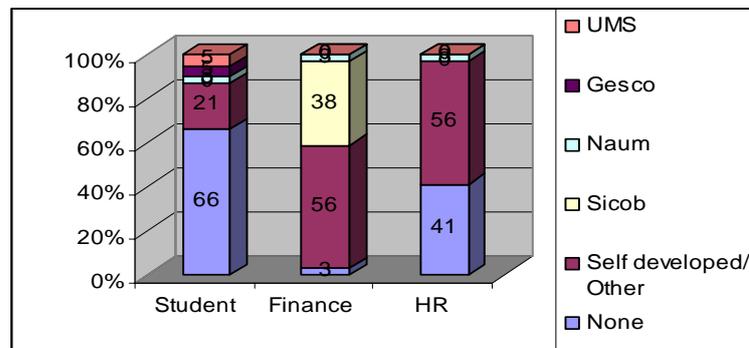


Figure 2. Percents of installation by ERP vendor

4. Conclusion

Low budgets of most university constrain them and they are trying to work their way out of this situation by using self developed applications. The problem with these applications is that they are not integrated, they are not communicating with each other, leading to extensive use of paper, lack of real-time information, redundancy in information inputs and lack of transparency. More, when transferring data from one module to another, there might be required data transformations, which are made manually now.

On another side, the Romanian education system has just been integrated to the European education system, so there is a need for reorganization to accommodate to the European standards. In the same time, there is the need to accommodate to the ECTS system.

The attempt of ministry of education to create an ERP/Finance system for universities did not succeed, but it might come back. Would it be a good idea? The resistance to change is pretty high, as many universities has developed and implemented applications to suite exactly their structure and their needs. Sicob generated dissatisfaction as it wasn't updated to the changing laws. In fact, the frequent law changing affects all HE solutions, generating the need for updates, which are very costly and inconvenient.

European integration of Romanian higher education system might benefit from the support of European funds. But, in order to access the European funds, the universities should manifest interest, make congruent efforts and put some pressure on the decision factors, on one side, and, on the other side, the political support is also very important. For the moment none of them seems to be strong enough.

Universities should realize that they are not so drastically different and given that, they should collaborate in order to influence vendors to become more sensitive to higher education needs. This way, ERP vendors should provide some best practice models to reduce the costs of ERP implementation.

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