INTEGRATING ADMINISTRATIVE INFORMATION SYSTEMS: THE CASE OF GREECE

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1. EXECUTIVE SUMMARY

This paper describes the evolution and success of an integrated information platform over a 10 year period. The main focus is on progress since. The integrated approach has enabled a flexible service, with strategies designed to ensure alignment to the current and emerging needs of the University community in Greece.

1.1. Background

Greek Universities are legal entities under public law, with full self-administration under the supervision of the Ministry of National Education and Religious Affairs.
In the country there are twenty-three (23) Universities, including Polytechnic Schools, the School of Fine Arts and the Hellenic Open University.

Higher technological education is mainly provided by the Technological Educational Institutes (T.E.I.) which are self-administered legal entities under public law, supervised and subsidized by the state through the Ministry of National Education and Religious Affairs.
Today there are 15 TEI all over the country and the Higher School for Teachers of Technological Education; many institutes also have branches, i.e. independent departments in another town. There are a total of ninety-five (95) specializations offered.

The Cardisoft eUniversity platform has been implemented, following public tendering procedures, in 85% of the Higher Education Institutions in Greece.

1.2. Conclusions

The learning process during the past years that lead to our becoming market leader of integrated University applications in Greece can be summarized in a list of critical success factors.

2. Background – Current Status

Greek Universities are legal entities under public law, with full self-administration under the supervision of the Ministry of National Education and Religious Affairs. The academic structure of each University has the following three (3) distinctive levels:

- Each University Institute is composed of Schools (Faculties). Each School (Faculty) is divided into various Departments covering relative disciplines and actually has coordinating competencies.

- The Department is the main functional academic unit covering the full scope of the discipline in question, and leads to a single degree. The General Assembly of the Department is the primary administrative body through which teaching and research policy is determined and control is exercised.

- Departments are then divided into Sectors which correspond to smaller and distinct parts of the Department's full scope discipline, under the condition that the discipline is especially broad and that the number of main teaching and research faculty is sufficient.

Universities are responsible for managing the revenues derived from state grants and from their own assets. By Presidential Decree, with the assent of the Senate, it is possible to establish a special legal entity under public or private law to utilize and manage University property.

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2.1 Admission Requirements

Admission to the university sector of higher education takes place through the general entry exams.

2.2 Methods of Financing Education

Education financing is the responsibility of the state through the regular budget and the public investments budget; and secondarily by non-state sources (public agencies, individuals etc.).

2.3 Registration and/or Tuition Fees

According to the Constitution of Greece, higher education is public, is provided solely by the state and is gratis. Therefore, admission and registration to all the institutions of higher education (Universities and Technological Educational Institutes) as well as the attendance of the respective studies are provided to students free of charge.

2.4 Statistics

Number of students and graduates in Universities				
Academic year	Students	Graduates		
		Grads with 1st degree	Postgraduates (Master's)	Doctoral degree
1996-97	244,970	22,770	846	740
1997-98	253,915	21,309	1,555	728
1998-99	266,103	21,154	1,354	796
1999-00	276,902	22,784	2,275	1,049
2001-02	325,001	24,391	3,403	1,154
2002-03	342,640	27,545	3,765	1,237
2003-04	352,936	29,477	5,012	1296
2004-05	364,045	35,219	5,484	1,248

Number of students and graduates in Technical Educational Institutes					
Number of students/graduates and teaching faculty/administrative-technical staff of TEIs					
Academic year	Students	Graduates	Tenured teachers	Auxiliary	administrative-technical staff
2002-2003	192.504	12.388	2.679	8.740	1.806
2003-2004	209.635	13.907	2.792	9.482	1.809
2004-2005	223.187	17.068	2.818	10.098	1.847

3. Operational Programme "Information Society" (2001-2006)

The Hellenic Ministry of Education and Religious Affairs has launched a coordinate effort for the utilization of ICTs and their incorporation into the everyday educational procedure. This effort is implemented in the fields of the third Community Support Framework mainly from the Operational Program of Information Society and with the support of the Hellenic MoE Information Society office and the "**Strategy for ICTs in Education**" Committee.
It is constructed onto four lines of action:

- Installation and support of network and computational equipment.
- Development of software and digital content for administrative purposes (educational software, information systems, content, etc)
- Training of the educational community on ICTs, targeting to the utilization of the above areas
- Modernization of administration areas.

4. Key points of development

The developed Cardisoft eUniversity platform fully utilizes new technology and by providing access to various communication media such as the internet and telephone, seeks to fully modernize these educational Institutes and allow them to promptly and efficiently handle their daily workloads, improve the service offered to students and faculty, introduce new digital services and most importantly, unify different systems.

The Cardisoft eUniversity platform has been developed using Microsoft products, multi-tier architecture and client-server data transmission is done via XML.

Currently, **Cardisoft eUniversity Platform** consists of the following software application modules:

- **Digital Campus -** Covers all core operations of the Academic Institute Admission Office.
  - Managing undergraduate and post graduate student, logs changes in student status, courses offered, course data, thesis and dissertations, practical training, course selections, academic transcripts, supports diploma supplement, issuing degree certificates, distributing of books, etc.
- **StudentsWEB** – Web portal for student applications and interactions with Admission Office.
  - View of all useful information pertaining to academic programs.
  - By clicking on a specific course the student can obtain useful information as they appear at the Iinstitutes course bulletin.
  - All classes appear according to their departments and they are separated as undergraduate or graduate.
  - Every department has the ability to upload to the web site all kinds of announcements. All announcements are categorized by department. The student can choose to view the announcements of the entire institute or for a specific department.
  - Students can view the scholarships and awards for a specific academic year which are categorized by department.
  - The students after entering their user name and password have access to their personal data (grades, registration forms, etc.).
- **ClassWEB** – Web portal for faculty member(professors, instructors, etc.) applications and interactions with Admission Office.
  - Observation of classes of the current year or previous years.
  - The system will give the ability of grade input from any PC terminal which is network connected like admission office, professor's office, lab, etc.
  - Observation of various statistical data in pivot table and graphical presentation with ability to be exported to excel.
  - Observation of absences where is applicable (per course, lab, seminar, etc.).

- Faculty members utilizing the announcement & publication screen within the system can create messages, upload projects and class notes so students can access and download for their own use any time effortless.

- High security via SSL cryptography.

- **VoiceStudents** – Voice portal for student applications.

  • VoiceStudent is an automated informative telephone system utilizing high end Voice Recognition technology tools and applications. It is especially design to help students obtain the information they desire in a timely manner. VoiceStudents provides to an Institution a dynamic communication protocol platform that it is reliable, intelligent and user-friendly having at the same time the ability to work hard 24 hours a day 7 days a week. System upgrades include: **SMS Messaging, Voice Mail, Voice Attendant, Fax On Demand, E-mail On Demand, SMS Alert & Notification.**

- **iKiosk** – Infokiosk for student applications

  • The ikiosk solution transfers the Institute's database to the infokiosk screen. Requests for academic transcripts, certificates, courses, timetables, etc. will be available round the clock without the need to involve secretariat staff.

- **Time Table** – Schedule Management Application

  • This application allows for examination and teaching timetables to be prepared using algorithms that take into account the availability to teaching rooms, teaching staff, etc.

- **Reporting Suite** – Statistics Management

  • It is a web based application for the design and manipulation of all statistical reports that Academic Institutes need for their daily processes.

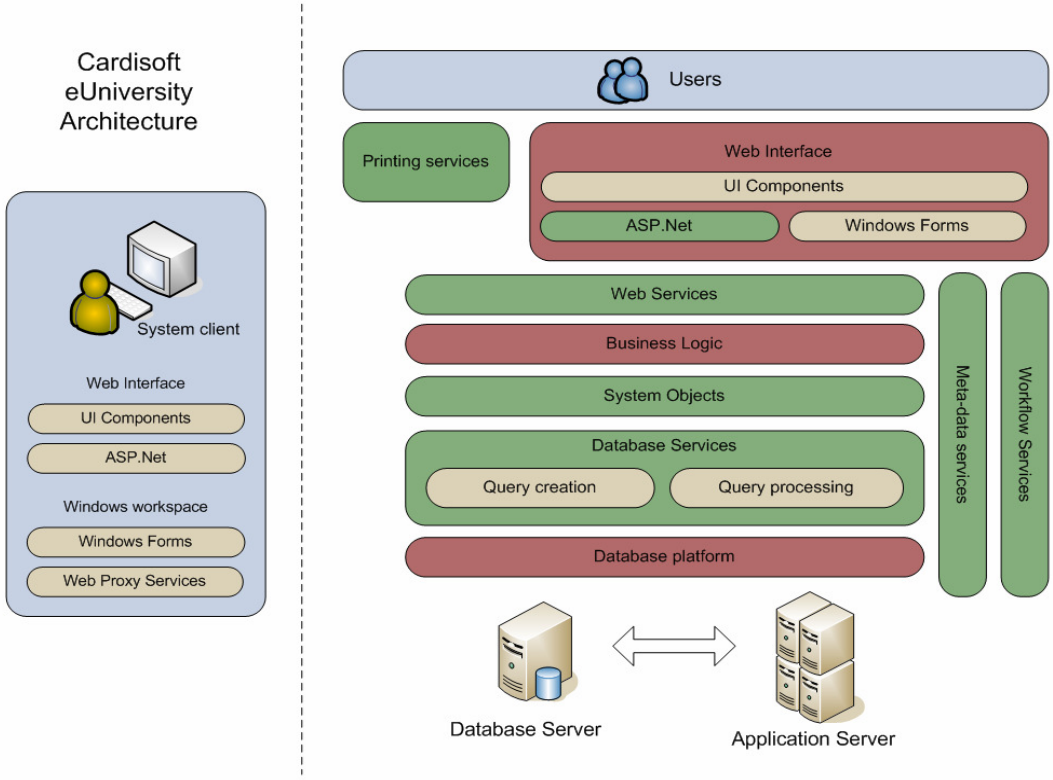
- **File Manager** – Electronic Document Management Application

  • The purpose of this filing application is to permit full online monitoring of the protocol file as well as to cover filing, logging, dispatch and monitoring of the documents generated by any academic Institute. It is a powerful tool with numerous configuration options at database level, which enables a tailor-made environment to be developed. The application replaces the hand written protocol register and organizes electronically all incoming and outgoing documents and information.

- **Development Tool Kit -** It has been developed using Microsoft products using multi-tier architecture and client-server data transmission is done via XML. The open architecture and unrestricted scalability used when designing this application can assist Academic Institutes in utilizing their existing technological infrastructure and ensuring the maximum return on their investment. Using the .NET eUniversity Development Toolkit and Web Services, applications can be developed by third parties using the most popular platforms such as Java and .NET, and thus new functions and services can be offered to Academic Institutes to cover any arising need.

4.1 System Architecture

Euniversity platform utilizes Client-Server technologies as well as multi-tier architecture. Data Storage is preformed once and data retrieval can be performed by many systems without any interrelated problems.



The role-based security model provides the system users access rights accordingly. Data can be encrypted on real time (on-the-fly).

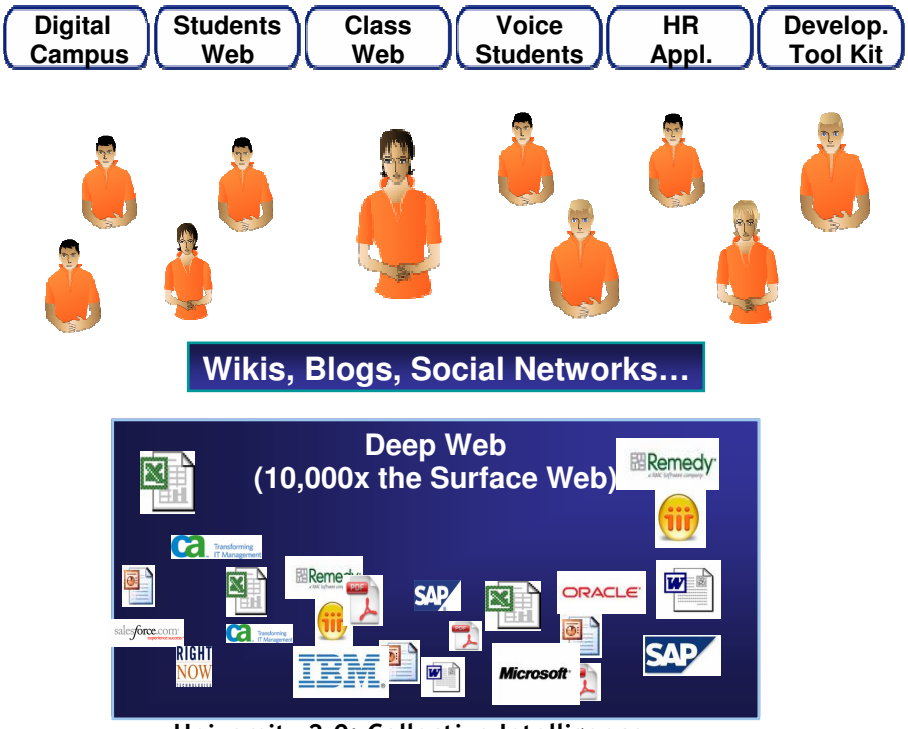
Generally, eUniversity security provides the following:

- User access is granted in various system levels such as application level, documents, databases, etc.
- Encryption of access codes and passwords
- Creation of a table of physical persons that can have access to the system as well as creation of the authentication process.
- Definition of the single and only one access code for the system use (single sign-on)
- Control system of data integrity
- Support of digital signatures and PKI infrastructure
- Data encryption over unsafe networks
- Event logging

4.2 What's Next?

The unique way that the internet continually improves in response to user experience is driving innovation on an unprecedented scale. There will doubtless be exciting new variants on current formats and perhaps innovations that come to be thought of as new forms of social media. They will develop in response to our appetite for new ways to communicate and to the increasingly flexible ways that we can go online.

That's why we decided to integrate our eUniversity platform with social networking features.



University 2.0: Collective Intelligence

5. Non-technical consequences of a technology deployment.

For an IT service provider, it's often easy to forget that there is a human/social aspect of the work. Often, the reactions of people to the technological deployments can surprise us, because we are so focused on the technical side and "helping business to work harder/smarter".

Even though users of the old traditional system were skeptical about the new eUniversity software solution, the two success stories changed their perspective and became even more enthusiastic about new technologies and applications which at the end improved their daily work load.

Success Story I: University of Crete. In 1996 University of Crete published a tender requiring an Integrated Information system to support its vision of the "Digital Campus". Cardisoft SA participated in the tender process and it was declared the winner.

The installation of Cardisoft eUniversity platform was performed with great success and the statistical reports of the system use reflect its advantages:

- During the first 4 months of use, Voicestudents telephone system was receiving daily more than 100 telephone calls helping students with their daily needs effortless.
- During the first 6 months, the digital campus system processed more than 65.000 transactions serving more than 13.000 students.
- StudentWeb portal in one year period processed more than 185.000 student transactions over the internet without the need of student's physical presence at the Campus's administrative offices.
- ClassWeb portal in a year time period processes more than 20.000 transactions performed by the faculty members for grade input, statistical data retrieval, exams, etc.

In conclusion, the statistical data from the use of the new Integrated Administrative Solution show that University of Crete after 1.5 year of operation saved more than 36 employees work annually.

Success Story II: Technological Educational Institute of Athens. TEI of Athens decision to modernize its technological infrastructure led the Institution to release a tender which called for a new Integrated Information system that could promote the eUniversity vision. In 1997, Cardisoft SA was announced winner of the tender and performed the installation of the eUniversity platform.

In a six months period, 33.000 students performed all kinds of transactions via Web and received electronically more than 5.000 reports such as grade reports, certificates of enrolment, etc. without having to stand in line waiting at the Admission Office.

Also, at the same time frame, 30.000 students performed class registrations through StudentWeb portal saving time for themselves and for the Institute staff.

Overall, if we assume that in order for a student to perform a class registration needs approximately 10 minutes then the Academic Institution in six months period saved 5.000 working hours or 625 working days (if we divide 5000 hours by 8 hour shift) by serving 30.000 students electronically.

6. Critical Success Factors

What we did learn during the past years as the market leader of integrated University applications in Greece, can be summarized in the following list of critical success factors:

- **Efficient internal organizational structure:** As a requirement, a company engaging in University activities should possess an efficient internal organizational structure. This particularly includes a qualified and professional project organization.
- **Standardized and documented processes:** Process standards (especially, CMM and ISO 9000) on the part of the Company also have an effect on University's Administration procedures.

- **Sustained management support:** Like with many other complex, high-risk projects, the success of an University- project is determined in great deal by the amount of support it receives from the University's Administration.
- **Preparation of a detailed project specification:** To prevent misunderstandings and obscurities, the preparation of a detailed project specification is essential.
- **Definition of clear project goals:** In order to execute an evaluation of the success of a project, it is important that the University determines well-defined goal.
- **Standardized and documented processes:** The subsistence of standardized and documented processes on the part of the Company can make a significant contribution to the successful execution of the project.
- **Comprehensive knowledge of the University environment:** The Company should exhibit comprehensive experience as well as an adequate number of reference projects within the Higher Education Environment.
- **Creation of a partnership-like relationship:** In order for a partnership-like relationship to function smoothly in the long run, both partners (Company and University) should be able to handle criticism.
- **Ensuring of a continuous communication flow.**
- **Continuous controlling of project results:** An integrated quality management is essential for reaching results. In this context, the monitoring of the project progress on a regular basis plays a pivotal role.
- **Definition of an accurate contract:** With regard to the content of the contract, on the one hand, the specific contents should be formulated in great detail, leaving little room for interpretations.
- **Composition of an appropriate project team.**