ICT ORGANISATION IN ROMANIA
The IT Based Educational System (SEI) is a complex program initiated by the Ministry of Education and Research in 2001, aiming to offer ITC support for the Romanian education system.

The program supports the objectives of the educational reform, in conformity with the eEurope 2005 action plan initiated by the European Union and with to the European eLearning initiative.

SEI is implemented by a public-private partnership. The main companies involved in the SEI implementation are SIVECO Romania, HP Romania and IBM Romania.
MORE on SEI

The IT-Based Educational System (SEI - from Romanian "Sistem Educational Informatizat") implements the Romanian government's strategy in the field of ITC and computer assisted education. It supports the objectives of the education reform and conforms to the eEurope 2005 action plan developed by the European Union, also being part of the eLearning European initiative.

SEI is one of the projects in which the Romanian society proved consistency. From the 2001 start-up, SEI completed 4 phases in a unified manner, following a coherent strategy towards establishing ITC as standard learning tools.
1. SEI STRATEGIC OBJECTIVES:

1.1. Digital literacy of the population
   Line of action: creating a critical mass of aptitudes and skills to use computers in teachers and school graduates.
   All high-school graduates are already able to use a personal computer.

1.2. Support for management and for teaching/learning
   IT is used to support the administration, but most importantly to support the teaching and learning activities. Education is modernized by using new tools and methods, for forming skills and aptitudes, for comprehending and accumulation of knowledge, for evaluation of the education.

1.3. The introduction of modern technologies (the use of computers)
   directly into the teaching process, for didactic purposes
   Remodeling the teaching system currently in use by introducing new teaching tools and methods for various subjects.
2. LINES OF ACTION

2.1. Access to technology: 1510 platforms in high-schools, Each high-school in Romania currently has at least one IT educational platform for use in teaching and learning mathematics, biology, physics, chemistry, Romanian language, history etc. A platform is composed of:

- Technology: 25 workstations, server, printer, Internet (600 schools connected) etc.
- Software and multimedia educational content – the AEL software system for computer assisted learning. AeL has repeatedly received awards and is appreciated both in Romania and abroad (an example is the IST Prize nomination by the European Commission);
- Methodology;
- Training of teachers.

In 2005 began the fourth phase of the SEI program. The phase end it in 2008 and include:

- Supplying computers for the 3,228 IT-labs from middle schools
- Supplying 42 regional training centers for the continuing education of teachers
- Providing 1,000 schools with a computer and a printer for administrative use
2.2. Tools for modern teaching and learning: Multimedia Educational Content

SEI promotes the use of IT in the classroom, directly experimented by pupils coordinated by their teacher. Besides the availability of technology in the school, we are talking about high levels of interactivity and direct, personal experimentation of phenomena and scientific theories by pupils.

Within SEI, there have already been distributed in all high-schools 16 dictionaries: explanatory, orthographic, synonyms, antonyms, Romanian-English-French etc.; encyclopedias and glossaries of terms, movies, art, poetry and theater: Encyclopedia Britannica – the concise edition etc.

530 multimedia lessons are available for 10 subjects – rigorously elaborated, considering psycho-pedagogical impact and curricula coverage.

During the fourth phase (2005-2008), 1,255 multimedia lessons are created and distributed in all IT-labs from middle schools and high schools. The phase also have include the creation of multimedia lessons for teaching English that cover all 8 years of primary-level education (children 6-14 years).
2.3. Training of teachers

More than the problem of technology availability, an important risk was defined to be not using the computers. After more than 3 years of SEI, the activities of (life-long) training of teachers, consolidating and establishing new technologies show solid results.

As part of delivering the platforms, 25000 teachers were trained in each high-school. Tens of training sessions for experts teachers and inspectors were held. All high-schools were included in information campaigns which included direct mailing, visual, audio and printed media. Contests and other activities for pupils and teachers were organized.

2 training courses were introduced in life-long learning curricula for teachers (general computer skills and using ITC in teaching). 206 teachers were trained and 7000 teachers each year are estimated to be trained in this system.

The result is that if in 2001 the academic world was rejecting the presence of high technology in the classroom a priori, in 2008 the teachers are personally and directly promoting ITC.

The teachers, the administration and the general public are actively requesting for supplementary resources, equipment, services, training, educational content.

A solid community of content authors is already in place and functioning, composed both of teachers and pupils, formed within the educational software contests such as SIVECO Cup, other software contests, thematic camps organized by or supported by MER.
2.4. Support for the management of education

SEI aims to organize the school and the institutional structures, the management of the teaching activities, coordination, tracking and monitoring of schools.

2.4.1. ADLIC (national contest and admission of 8th grade graduates in high schools and vocational schools) 2001-2008

http://admitere.edu.ro/

Introduced in 2001, the project was a complete success, being awarded the "best practice" label by the European Commission in Bruxelles in 2001.

(more info in: National Computerized High-School Admission and Distribution)

2.4.2. EvalMan 2002 – Electronic evaluation of school manuals

http://www.portal.edu.ro/pls/portal30/url/page/EVALMAN

(more info in: Textbooks Evaluation)

2.4.3. Contests for vacant teacher positions 2003, 2008

http://titularizare.edu.ro/

The project offered support to create, centralize and publish 75000 vacant teacher positions centralize data including examination results for 45,000 candidates, each year computerized distribution of teachers in schools. The method proved to be correct, reliable and transparent.

(more info in: Teachers' Nomination Upon Vacant Positions)

2.4.4. Baccalaureate 2004 -2008 National 12th grade graduation examination

http://bacalaureat.edu.ro/

All data regarding the aprox.175,000 candidates was centralized during the examination. The examination documents were securely transmitted over the Internet for 80 examination centers.

(more info in: Baccalaureate)

2.4.5. SEI Educational Portal

http://portal.edu.ro/

National center for communication, promotion, technical support, the Portal has 40000 registered users and constitutes the most important and active educational community in Romania.
STRATEGIES

Components and stages were designed based on EU methodologies, taking into account the existing logistic and financial support in Romania.

SEI is designed as an integrated nation-wide solution, composed of an integrated network of local and regional solutions. Each IT laboratory provided to schools is itself an integrated solution, ready to be used by teachers and pupils. The IT laboratories (local solutions) are integrated into a logical network comprising all the schools in a region. All Romanian regions are integrated into a national network connected to and coordinated by the SEI management unit located in RMER.

The SEI Program aims to offer access to IT (computers and Internet) for all teachers and pupils in primary schools, secondary schools and high schools in Romania.

One of the main forecasted benefits of the Program is insuring that all graduates will be "IT literate". The program also aims to encourage innovative teaching and learning and to stimulate creativity among teachers and students, offering a general framework for development of collaborative projects, allowing the people enrolled in the educational system to participate in the development of the information society. SEI triggers modifications to the school curricula, integrating new learning methods based on IT&C.

The SEI Program offers new tools for use in schools, thus increasing the quality of the education process. It offers a substitute for expensive or dangerous instruments and experiments by means of virtual counterparts. Within SEI Program, the local, regional and country administration is provided with managerial and administrative support.
The main components of the solution are:

- Hardware (IT laboratories)
- Learning & Content Management Solution (the AEL software system)
- Educational software and electronic educational content;
- Teacher training;
- Internet connectivity.

The standardized high-school IT classroom is composed of 1 server, 25 workstations, printer, scanner, equipment for networking and Internet connectivity. Manufacturers configure the computers with basic operating software: operating system, email server and email clients, software firewall, office software and anti-virus software.

The backbone of the program was the Learning and Content Management System AEL – Advanced eLearning, which was implemented in all 1,510 Romanian high schools. AEL eLearning platform is an integrated teaching/learning program and content management system, based on modern educational principles and technologies. The AEL eLearning platform offers support for teaching and learning, for tests and evaluations, for managing the educational content, for monitoring the educational system and creating the curricula.
The implementation of the Program is a complex process and there have been many critical aspects to be dealt with during its various phases, derived both from the Program’s scope and scale. The basic problems faced by the Program at this moment are:

Providing sufficient access to technology for teachers and pupils;
Elaboration and validation of an official methodology for the use of IT in education; and
Teacher training.

The IT laboratories provided by SEI are currently present in almost all Romanian high schools. As mentioned above, the increase in the use of computers and Internet is already obvious, and strong public requests for joining the Program are coming from schools and individual teachers. The challenge remains to support this national wave and to attract the parts of the system that have not yet been involved.

The fourth phase lasts from 2005 to 2008. The main objective of the fourth phase of the IT-based Educational System is to extend the introduction of IT to middle-schools (providing education to children 10-14 years old).
The fourth phase includes:

- Supplying computers for the 3,228 IT-labs from middle schools and 42 regional training centers for the continuing education of teachers.
- Providing and implementing multimedia educational content for all these locations, as well as training for all system administrators and teachers.
- Providing 1,000 schools with a computer and a printer for administrative use.
- Creating 1,255 multimedia lessons and distributing them to the IT-labs from all locations.
- Running IT-projects in 2005 for the national exams (standardized tests) (High School / Vocational School Admission, Baccalaureate, Teachers' Nomination upon Vacant Positions Exam).

- Providing IT-support for the following projects:
  - Euro 200 - Software application for the 200 Euro Governmental Financial Aid for purchasing a new computer (for pupils and students);
  - Money for High School - Managing applications for the ROL 1.8 million/month financial aid for high scool and vocational school students.


- As a result of the contract being renegociated, MEdC has obtained numerous advantages, among which:
  - 600 additional IT-labs (a 23% increase) and 283 additional electronic lessons (a 29% increase).
  - AeL updates in all locations where AeL has previously been implemented.
  - free distribution of all eContent materials (new and previously developed) to all of the locations and MEdC's right to modify the lessons.
  - free supervision and execution of the IT-based projects of national interest:
    - „200 de Euro” - Euro 200;
    - „Bani de liceu” - Money for High School.
RESULTS (example)

Some data on SEI concluded projects and the special projects developed within the program.

- 2,468,589 users
  - 700,000 pupils and 62,000 teachers have access to the AEL eLearning platform and the eContent
  - 1,195,091 secondary school graduators enrolled in the computerized high school admission and distribution in 2001-2008
  - The IT system centralized data on 353,878 applicants for the High School Leaving Examination 2004-2008
  - 157,620 teachers took part in the teachers’ nomination upon vacant positions exam in 2003-2008
- 50,000 trained teachers in using AEL
- 43 man – years AEL training & implementation
- 4,780 IT labs
  - 76,320 performing computers
  - 4,780 servers
  - 4,780 installed and configured networks
  - Installation and configuration of the eLearning platform and educational content
- 600 high schools connected to the Internet
- 1,385 multimedia lessons (AEL lessons)
  - 158 for biology;
  - 234 for mathematics;
  - 70 for computer science;
  - 77 for history;
  - 228 for geography;
  - 200 for chemistry;
  - 252 for physics;
  - 114 for technology;
  - 1-8 classroom - english language;
- 16 eDictionaries;
- 30,000 eTests;
- 3 multimedia encyclopedias;
- 7 PC user' guides interactive tutorials;
- SEI Educational Portal (http://portal.edu.ro/) - 61,400 registered users, 271,198 messages posted on forum;
- 600 technologies examination centers for the Baccalaureate in 2004 - 2005;
- 80 examination centers received the High School leaving exam subjects via secured Internet;
- 22,335,357 options expressed by the applicants for the High School Leaving Examination 2004;
- 12,563 messages emailed by the technical support team to the AEL users;
- 496 messages sent by the technical support team via http://forum.edu.ro/;
- 90 press releases on SEI (stages, events, results);
- 495 press articles in the central media;
- 57 press articles in local media;
- 246 online articles;
- 16 broadcasted radio shows;
- 17 TV shows;
- 11 seminars/public debates;
- monthly newsletter to 22,570 subscribers;
- 12 participations in international events (exhibitions, conferences);
- Rolled out in – 2001-2006;
- 483 man-years effort for SEI roll-out.
Education before implementing SEI

- In 2001, the year that SEI started:
  - 1,321,333 pupils enrolled in 12,709 secondary schools
  - 687,919 pupils enrolled in 1,357 high schools
  - 64,018 high school teachers
  - 102,294 teachers in secondary schools
  - 3 PCs/100 pupils in secondary schools
  - 5 PCs/100 pupils in high schools
- 3.5 PCs connected to the Internet/100 pupils

On http://admitere.edu.ro, future high school pupils were able to check the schooling plan for 2008. The peak traffic was registered on the 26th and the 27th of June, after publishing the final results of the first phase of the The National Admission and Distribution of Secondary School Graduates in High Schools and Vocational Schools.

The star of these days remains http://bacalaureat.edu.ro, where all those interested may find out the partial results for the Baccalaureate. On the 5th of July 2008 the website registered a new record: 351.187 visitors in just one day.

The success of the forum http://forum.edu.ro is due to its users that are actively debating on the theme of exams and generally on education, but also to the specialists of SIVECO Romania, in charge with the site’s administration components and to the volunteers that moderate the discussions and help the forum’s users to get relevant answers to their questions.