



# IT Sector in Armenia



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# IT Sector in Armenia

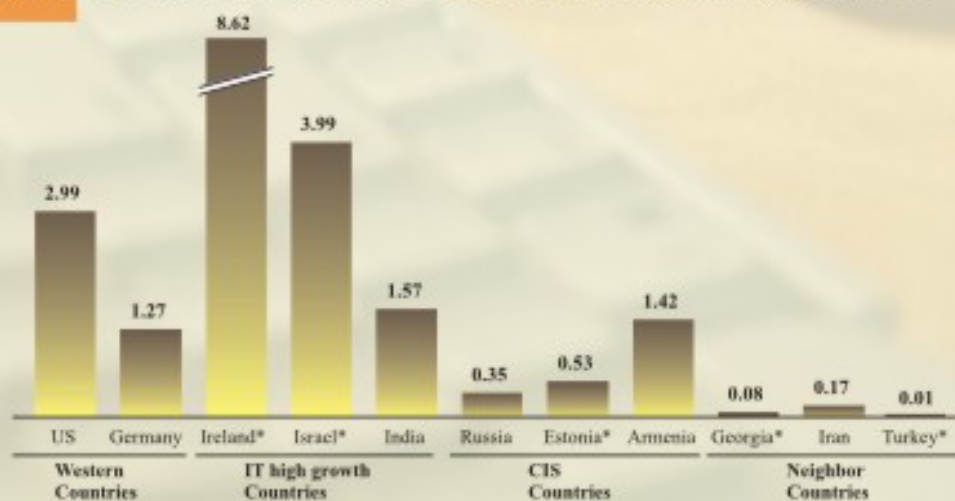
## Introduction

Armenia can competitively satisfy the needs of IT companies seeking access to a highly qualified talent pool of IT specialists at very cost competitive rates.

Armenia's competitive strengths in the software and IT services sector are based on a unique 50 year-old tradition of multi-generational IT skills. The highly qualified workforce is based on a traditionally strong education system and leading research institutions. Armenia was the leading center of computing technologies and regarded as the Silicon Valley of the Former Soviet Union (FSU). At its peak, in the beginning of the 1990's, the Armenian IT / electronics sector was supplying almost 30% of the computer-related equipment for the Soviet defense and space industries.

Nowadays the Armenian software and IT services sector is one of the most successful and fastest growing industries in Armenia and its contribution to GDP is comparable to countries like Germany and India (Graph 1).

**Graph 1. Software and IT services sector: GDP share - nominal, percent, 2003**



\* 2002 data, Georgia 2001 data

Source: Key Levers for Productivity Improvement and Software and IT Services Sector Potential, McKinsey & Company, 2003

Today, the sector is dominated by foreign investors who have located in Armenia to capitalize on the young, highly qualified workforce. Around 80% of IT output is exported to over 20 countries, mainly USA, Europe and CIS.

The major specializations include embedded software and semiconductor design and testing, custom software development, accounting and financial applications, artificial intelligence, software development outsourcing, multimedia design, industrial automation, Internet applications, web design and development, management information systems (MIS) and system integration.

In particular, Armenia has outstanding achievements in semiconductor design and testing. Most of the foreign subsidiaries dealing with semiconductor IP place R&D facilities in Armenia because of the availability of a talented and creative work pool at very competitive wage rates.

## Key Benefits

- ◆ **Intellectual Capital** - Armenia possesses a highly qualified creative talent pool of IT/software specialists as a result of its tradition in the IT sector and its educational emphasis on IT. The annual output of graduates is more than 1,000 and salaries are at internationally very competitive levels (Graph 3).
- ◆ **Productivity** - Average annual productivity per specialist in companies with foreign investment in Armenia is up to USD 161,000, of which Armenian costs for salaries, contributions and other expenses account for USD 20,000 (Graph 6).
- ◆ **Cost Efficiencies** - Monthly salary for an experienced software developer is USD 600. Average wage rates for software development is more than 10 times lower than the US and a third of the cost of similar labor skills in India (Graphs 4 & 5).
- ◆ **Education and Academic Interface** - Currently, 78,000 students are enrolled within 42 universities, most of which are actively collaborating with leading academic institutions around the world. Armenia is noted for the high level of science and technology in its institutes and workforce, and the creativity of its scientists and technologists is the basis for the continuing importance of science and technology in Armenia. Graduate output of IT specialists in 2004 was 1,000 a 54% increase over 2003. This increase is due to the universities responding to an increasing demand for IT education which in turn is driven by the increase in foreign investment in the sector.
- ◆ **Linguistic Skills** - According to a UNDP survey of the age group 13 to 33, over 30% have the proficiency to conduct business in the English language, which is the third language spoken behind Russian which dominates as the second.
- ◆ **Market Leverage** - Ability to serve customers in Europe and the US while capitalizing on the burgeoning market opportunities courtesy of Armenia's free trade agreements with the CIS including the Russian Federation with its 150 million consumers.

## Key Facts

- ◆ There are over 120 IT companies in Armenia with a total workforce of over 3,500. Technical specialists make up 75% of the workforce with the remaining 25% being managerial and marketing staff.
- ◆ The Armenian IT sector is dominated by foreign investors with US participation accounting for 65% of investment in the sector.
- ◆ The workforce is growing at an annual rate of nearly 20%, and about 70% of this growth is in companies with foreign investment.
- ◆ The annual growth of established IT companies with foreign investment is around 30% and 20% for indigenous companies. Approximately 80% of IT output is exported to over 20 countries, mainly USA, Europe and the CIS.
- ◆ The major specialization is semiconductor design and testing, where foreign subsidiaries place R&D facilities in Armenia. Other specializations are custom software development, accounting and financial applications, artificial intelligence, software development outsourcing, multimedia design, industrial automation, Internet applications, web design and development, management information systems (MIS) and system integration.
- ◆ A 2002-2003 report by Brainbench [www.brainbench.com](http://www.brainbench.com) demonstrates the high quality of Armenia's human capital. The Brainbench Global Skills IQ Report for 2003 lists Armenia and Russia as sharing first place in the CIS, and the third worldwide, in the category of geographical areas with the highest average IT test scores. That report revealed that Armenia has one of the highest concentrations of certified IT specialists in the world (Graph 2).
- ◆ The government of Armenia has an ambitious national vision for IT and supports the leading role of IT through its declaration of IT as a priority sector and by being itself a lead user of IT, e.g. e-VISA applications.
- ◆ Tough fiscal and monetary policies, combined with a sustained commitment by the Armenian Government to improve the investment climate, have manifested themselves in exceptionally low inflation (average rate of 4.5% between 2001 and 2003) and impressive GDP growth (average rate of 12.1% for the same period).
- ◆ In 2003 Armenia was ranked alongside France and Hungary in the annual survey of the 'Index of Economic Freedom' conducted by the Heritage Foundation / Wall Street Journal.

## Foreign IT investors in Armenia



**Synopsys, Inc. [www.synopsys.com](http://www.synopsys.com)**

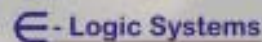
Synopsys, Inc is a leading provider of electronic design automation (EDA) software and services used to design complex integrated circuits (ICs), field-programmable gate arrays (FPGAs) and systems-on-chips (SoCs) for the global semiconductor and electronics industries. Synopsys solutions include pre-designed and pre-verified blocks of intellectual property (IP) that can be easily inserted into design flows, as well as technology to address yield and manufacturing issues early in the design process.

Compute power, multi-media, graphics and communications features are converging in consumer products, putting additional pressure on engineers to create designs that are especially sensitive to cost, power consumption and size. Synopsys gives its customers a competitive edge in bringing the best products to market quickly while reducing costs and schedule risk. From high-level synthesis to silicon, Synopsys provides solutions to the most difficult challenges that confront engineers who are pushing electronic design to the limit. Synopsys technology can be found in virtually every chip in the world. Synopsys is headquartered in Mountain View, California and has offices in more than 60 locations throughout North America, Europe, Japan and Asia. (Nasdaq: SNPS).



**Credence [www.credence.com](http://www.credence.com)**

Credence Systems Corporation is the industry's leading provider of design-to-test solutions for the global semiconductor industry. By applying leading-edge technology to lower the overall cost-of-test, Credence delivers competitive cost and performance advantages to integrated device manufacturers (IDMs), wafer foundries, outsource assembly and test (OSAT) suppliers and fabless chip companies worldwide. (Nasdaq: CMOS).



**Epsilon-Logic Systems [www.e-logic.com](http://www.e-logic.com)**

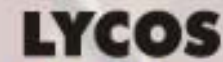
Epsilon-Logic Systems is a U.S. based company specializing in the development of cutting-edge software systems in various areas of the software industry including mobile computing, image processing, as well as custom client/server technologies. The company's customers include Spenser Communications, Closet World, Nestle, and Panasonic.



**HPLA LLC [www.hpl.com](http://www.hpl.com)**

HPLA LLC was established in Armenia in 1995 to serve the engineering needs of the parent company, HPL Technologies Inc., headquartered in San Jose, California, USA. HPLA has a staff of more than 110 software, test, and support engineers. The parent company is a leading provider of yield optimization solutions for the semiconductor and flat panel display industries. The company offers a comprehensive portfolio of products and services including: silicon-proven intellectual property (IP), highly flexible data analysis platforms, factory floor systems and professional services. A substantial part of HPL software products are developed at HPLA in Armenia.

## Foreign IT investors in Armenia



meet you there

**Lycos [www.lycos-europe.com](http://www.lycos-europe.com)**

Lycos CJSC is a fully owned subsidiary of the German based Lycos Europe (Prime Standard: LCY/Nouveau Marché: 5770), which followed its strategy of strengthening its core competencies by adding a new Competence Center in Armenia. Lycos Europe has six competence centers in Gutersloh, Copenhagen, Hamburg, Paris, Stockholm and now in Yerevan for the development of its core services, search, communication, communities and shopping.



**Hylink**

Hylink is a subsidiary of the US based Cylink Corporation. Cylink develops, markets and supports a comprehensive portfolio of hardware and software products for mission-critical private and public networks and business communications over the Internet. Hylink in Armenia is an R&D facility of Cylink Corporation. In February 2003 Cylink was acquired by SafeNet (Nasdaq: SFNT), a leading provider of private and public network security solutions.



**Epygi Labs [www.epygi.com](http://www.epygi.com)**

The American Epygi Labs company currently employs 185 specialists and plans to invest USD 20 million by 2005 and expand its staff to 500 employees. Most of the employees of the company are involved in R&D in the telecommunications area.



**Synergy International Systems, Inc. [www.synisys.com](http://www.synisys.com)**

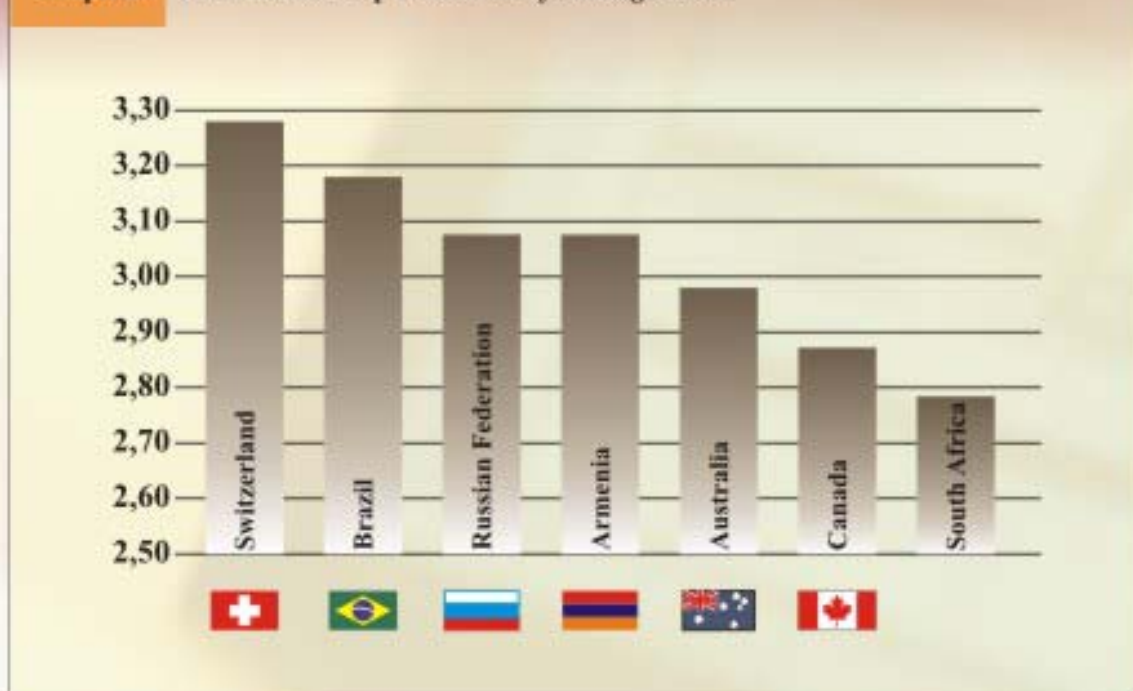
Synergy International Systems, Inc. is a US-based software company operating in Armenia through its Yerevan subsidiary Synergy International Systems / Armenia. Synergy specializes in the development of integrated Web Database, Web Portal and Web Services solutions for business intelligence, knowledge management, e-Government, process performance and executive information and decision support. Synergy's flexible and user-friendly technology - Intelligent Data Manager™ (IDM™) - is a commercial-off-the-shelf Web Services suite for accelerated development of large scale, Web-enabled database applications involving workflow processes, data analysis and management, business intelligence, knowledge sharing and Web portals.



**Virage Logic Corporation [www.viragelogic.com](http://www.viragelogic.com)**

Virage Logic International, which currently employs more than 70 software professionals, is a leading provider of best-in-class semiconductor IP platforms, based on memory, logic, I/Os, IP development tools that are silicon proven and production ready. Customers include Agere, Agilent, Alcatel, AMCC, AMD, AMI Semiconductor, ATI Technologies, Broadcom, Conexant Systems, Ericsson, Fujitsu, Hitachi, IBM, Infineon Technologies, Intel, LSI Logic, Matsushita Electronic Components, NEC, Oki Electric, Philips, PMC-Sierra, Sharp, Sony, STMicroelectronics, Tellabs, Toshiba, and Vitesse Semiconductor. (Nasdaq: VIRE).

**Graph 2. Brainbench - Top Countries by Average Score**



## Workforce

Armenia's highly qualified IT workforce is based on a traditionally strong education system and leading research institutions. Armenia was the leading center of computing technologies and regarded as the Silicon Valley of the Former Soviet Union. It was the location of one of the first and largest schools of cybernetics in the world, which was established in the mid 1950s (the Mathematical Machines Research Institute) and, by 1960, had produced its first computer.

Before 1991, Armenia was a key developer, producer and supplier of almost 30 percent of high-tech computer and electronic equipment for the Soviet defense and space systems. Armenian educational institutions and specialized laboratories produced highly qualified specialists in electronics, hardware and software development.

This specialization in IT continues today. Armenian specialists not only possess in-depth knowledge of IT but are also well educated to solve more complex problems linked to high-tech engineering. The investment by foreign IT companies in Armenia to date is a testimony to the skill levels and adaptability of the Armenian workforce.

The Government of Armenia supports the leading role of IT by its declaration of it as a priority sector and by setting out an ambitious national vision. Educational institutions both public and private have continued and expanded their emphasis on IT.

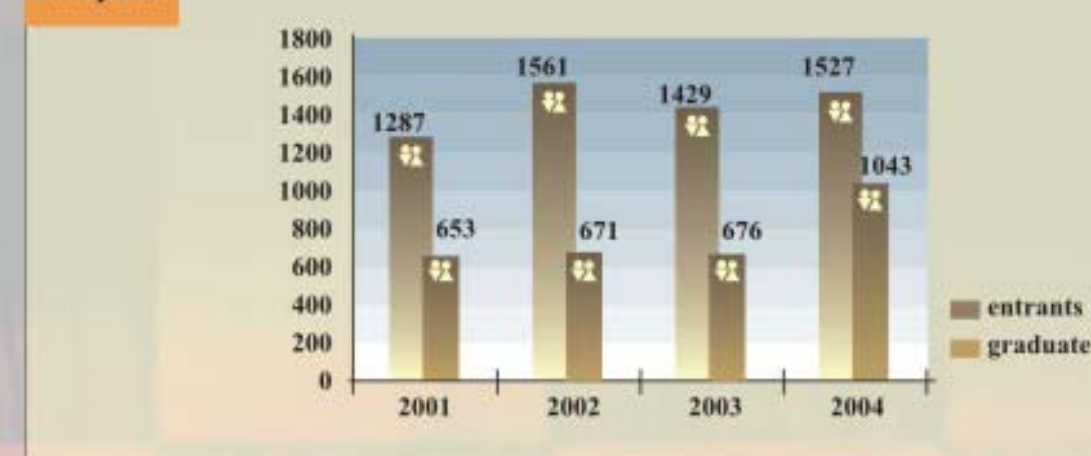
## Graduate Output

Over 6,000 students are enrolled in 19 educational institutions with IT specializations. Two institutions, Yerevan State University [www.ysu.am](http://www.ysu.am) and State Engineering University of Armenia [www.seua.am](http://www.seua.am) are the leaders for educating IT specialists in Armenia and for building traditional scientific schools.

There are also several foreign universities providing university-level IT education. These include the European Regional Institute of Information and Communication Technologies (ERIICTA), American University of Armenia (AUA), Russian-Armenian Slavonic University and Yerevan University of Management and Information Technologies. In addition there are fast growing private universities tailoring their curricula towards IT professional education and training.

The number of students and graduates for the past four years are shown in the Graph 3. below.

**Graph 3.**



In 2004 IT graduates number exceeded 1,000 per annum for the first time, which was an increase of 54% over the previous year. This was the result of a government supported increase in student intake to IT courses in 2000 caused by an increased demand for IT education in response to the significant growth of foreign investments in the sector.

An additional 2,000 technology students are studying in disciplines which contain a significant IT component and can lead to a career as software professionals.

## Labor Availability and Recruitment Experiences

While statistics on graduate output and the skills profile within the sector represent useful indicators, the most accurate barometer, to gauge skills availability, is to share the experiences of IT companies operating in Armenia which are regularly recruiting as they expand.

*"At present we have a total staff of about 140 IT professionals. At the time of each recruitment campaign for specialist level positions we are receiving CVs of about 30 to 40 qualified applicants, with around 10 persons per position fully satisfying our requirements."*

Ms. Anahit Grishchyan, Human Resource Manager, HPLA (a subsidiary of California based, Heuristics Physics Labs, Inc.)

*"Usually, at the time of each recruitment, after detailed assessment of numerous CVs and interviews, we still have three or four qualified IT specialists to select from for each position."*

Mr. Manuk Gevorgyan, Managing Director, Credence Systems (a joint venture of the American company, Credence System Corporation, and Fluency Technology Inc.)

*"Since Monterey\* began operations in Armenia, we've built an excellent team based on very highly educated and qualified engineers and with a close cooperation with Yerevan State University,"* said Hayk Hovhannisyan, general manager of Monterey Design Systems Inc.

\* Bought out by Synopsys in 2004.

## Labor Costs and Productivity

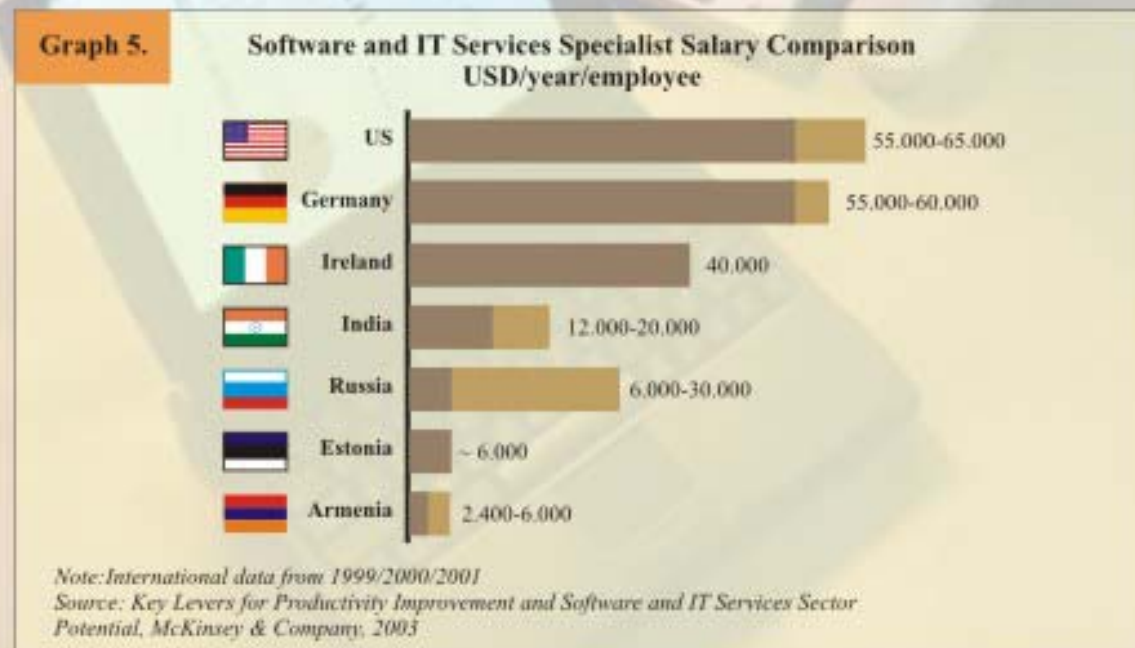
The average salary for an experienced software developer is only USD 600 per month. Details on salary levels for different grades of software developers and management are shown in Graph 4 below.



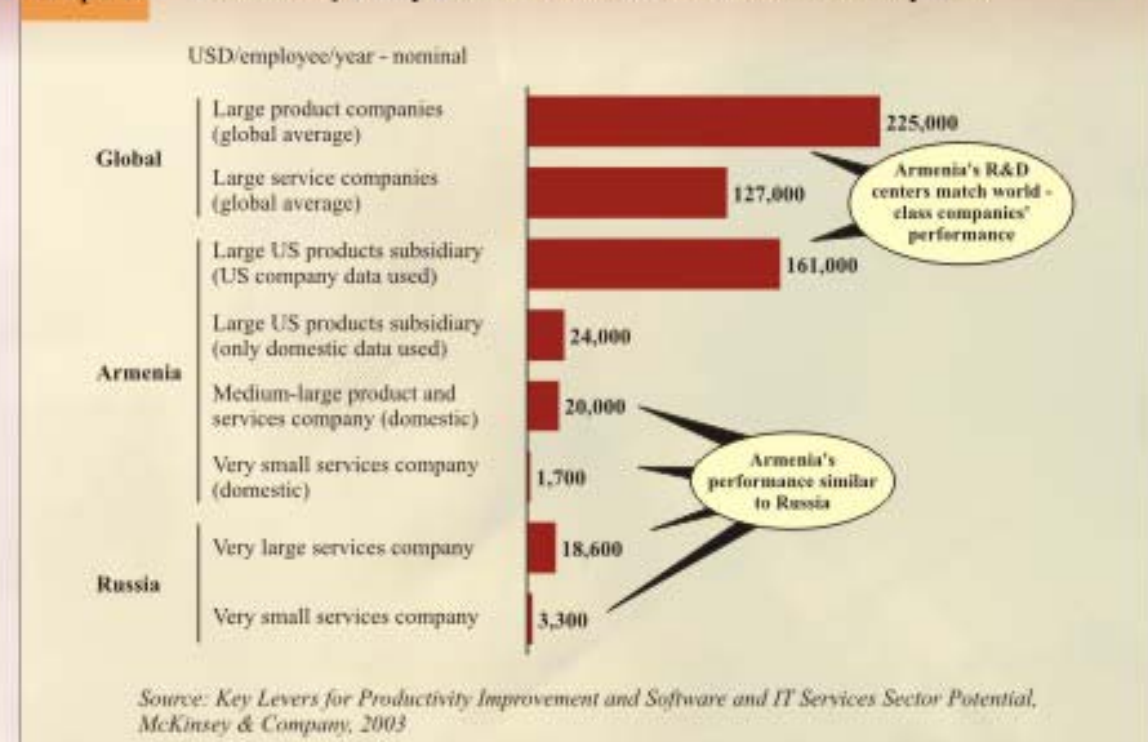
Labor "on-costs" - social insurance payments met by the employer, are also low with an indicative range of 9% for a gross salary of USD 600 per month and 7% for management positions with a salary of USD 1,200 per month.

The average annual growth of real wages is 5%, but coming from such a low base, the Armenian labor force will remain highly cost competitive for many years.

Internationally Armenia compares very favorably with other IT concentrated locations like USA and India. Average wage rates for software development are estimated to be more than 10 times cheaper than Germany and roughly a third of the cost of similar labor skills in India. Graph 5 gives comparable wages from selected countries.

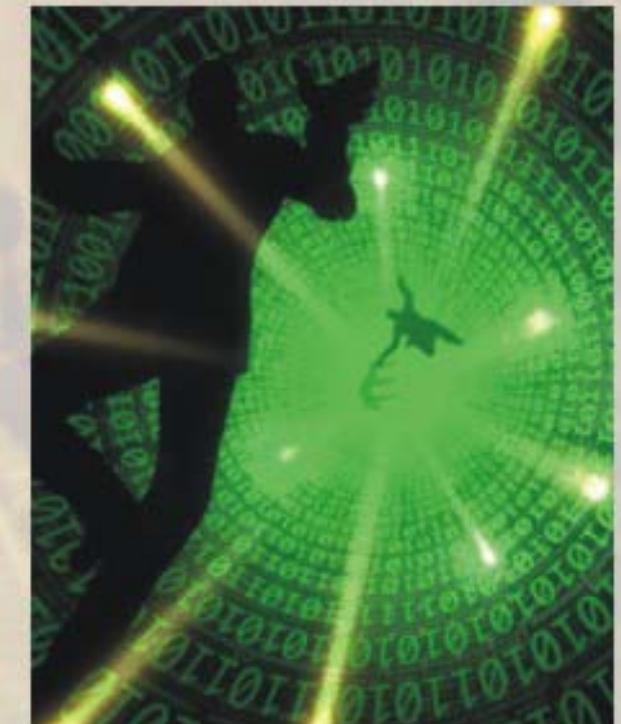


**Graph 6. Productivity Comparison - Software and IT Services Companies**



Average annual productivity per specialist in companies with foreign investment in Armenia is estimated at USD 161,000 per employee which compares favourably with international standards, although only about USD 20,000 is left in the country in the form of salaries, contributions and other expenses. (Graph 6).

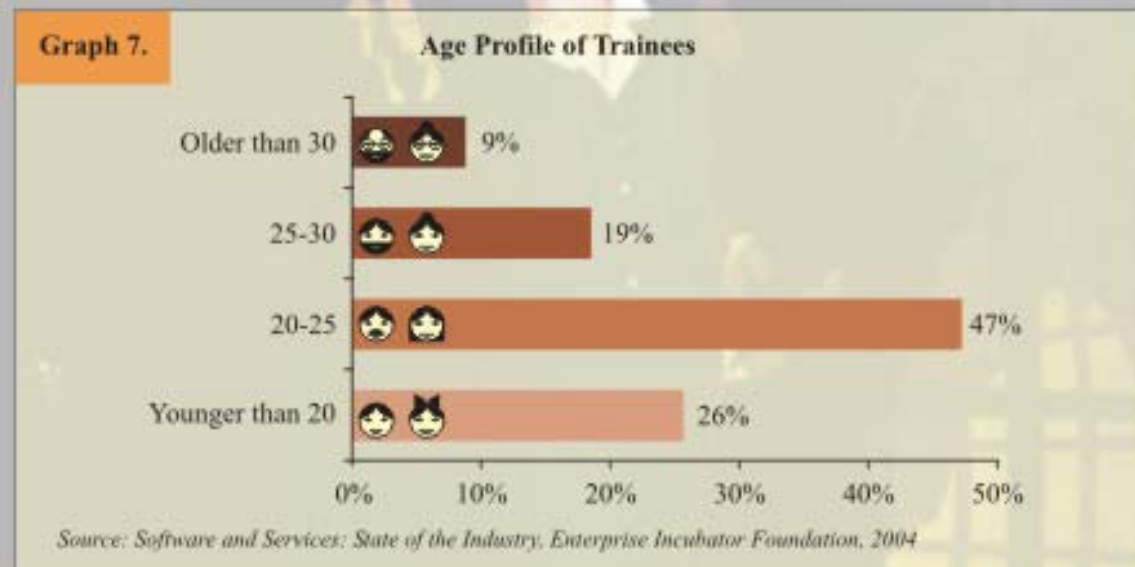
"Software engineering represents one of the most attractive investment opportunities in Armenia. Many U.S. firms have already started successful software projects in Armenia employing Armenian programmers and using the benefits of high quality, low cost labor."  
"Country Commercial Guide" Embassy of the USA in Yerevan, Armenia, 2004



## Training

In addition to graduate courses there are 18 training centers in Armenia providing IT-related courses to approximately 4,500 students annually. Over 70% of trainees are under the age of 25 (Graph 7).

A new specialized training center was recently opened by US companies, Cadence Design Systems and LEDA\* Systems. These two companies donated to the State Engineering University electronic design software and services valued at USD 25 million for use in its microelectronic circuits and systems department. A Chair of Microelectronic Circuits and Systems is also being funded. Cadence is providing software valued at 20 million USD for designing intellectual blocks of semiconductors. LEDA is providing USD 5 million worth of services, training and equipment to the university. LEDA has already invested USD 4.5 million for the construction and equipment of a new building for the faculty.



New specializations in Internet Technologies and IT project management have been introduced to academic curricula through a partnership between Lycos [www.lycos-europe.com](http://www.lycos-europe.com), Enterprise Incubator Foundation [www.eif-it.com](http://www.eif-it.com) (a World Bank project), Yerevan State University and the State Engineering University.

There is also a project underway funded by the World Bank, and implemented by the Ministry of Science and Education, to introduce mass use of IT in schools.



\* Bought out by Synopsys in 2004.



## R & D and Academic Institutions

Increasingly, innovation and intellectual capital within enterprises hold the key to improved international competitiveness. The same can be said for countries. The R&D situation within Armenia's private sector companies and academic institutions is impressive. Essentially, they can be categorized into three groups.

### Private Sector R & D

An impressive amount of R&D is now carried out in the private sector. Many foreign companies have moved a substantial part of their R&D activities to Armenia taking advantage of its highly qualified talent pool of IT specialists at very competitive salary levels. The major companies involved in R&D in Armenia are as follows:

**Credence Systems Corp.**  
[www.credence.com](http://www.credence.com)

R&D team of Credence is specialized in the manufacture of automatic test equipment. Credence addresses a broad spectrum of the semiconductor industry's testing needs, by offering a wide range of systems for the design, validation, and test of analog, digital, memory, mixed-signal, and wireless semiconductor devices.

Credence is listed on NASDAQ under the symbol CMOS.

**Epsilon-Logic Systems**  
[www.e-logic.com](http://www.e-logic.com)

The company has extensive experience in a number of languages and technologies including Visual Studio, C/C++ (OOP), MFC, ASP, IIS, Java, VB Scripting, Java Scripting, MS SQL Server, Oracle, and others. Thanks to the R&D team in Armenia, the company has developed a number of software and applications, such as Paperless Document and Job Tracking Systems, Sales, Receipts, Inventory and Purchases Forecasting System, and Global Order Entry System - ASP, IIS, NT Server based server applications, for Oracle or MS-SQL Server backend legacy database systems.

**HPLA LLC**  
[www.hpl.com](http://www.hpl.com)

HPLA was founded in 1995, and employs more than 110 researchers, software and support engineers in Armenia.

HPL Technologies is a leading provider of yield optimization solutions for the semiconductor and flat panel display industries. HPL offers a comprehensive portfolio of products and services including: silicon-proven intellectual property (IP), highly flexible data analysis platforms, factory floor systems, and professional services. HPL solutions have enabled companies to significantly improve yield by accelerating the process by which they identify, characterize and eliminate sources of failure throughout the entire product lifecycle. Most of HPL traditional lead software products, including over 500 modules for its enterprise solutions, were developed in HPLA in Armenia.

**Lycos CJSC**  
[www.lycos-europe.com](http://www.lycos-europe.com)

Lycos Armenia integrated into Lycos Europe's network of competence centers in Gutersloh, Copenhagen, Hamburg, Munich, Paris and Stockholm for the development of its core services search, communication, communities and shopping. Lycos Armenia employs sixty high-qualified, experienced developers with skills in the field of Applications for Mobile Business. They focus on enforcing Lycos Europe's development competence in the Community area while providing an economic option to instantly scale development capacity according to business requirements.



**Synopsys, Inc.**  
www.synopsys.com

Synopsys, Inc is a leading provider of electronic design automation (EDA) software and services used to design complex integrated circuits (ICs), field-programmable gate arrays (FPGAs) and systems-on-chips (SoCs) for the global semiconductor and electronics industries. Synopsys solutions include pre-designed and pre-verified blocks of intellectual property (IP) that can be easily inserted into design flows, as well as technology to address yield and manufacturing issues early in the design process.

**Virage Logic Corp.**  
www.viragelogic.com

Virage Logic Corporation is the market leader in application-specific embedded memory cores. The product range includes memory compilers, software tools that enable the development and reuse of memory cores, and custom memory design services.

Virage Logic, a leader in semiconductor IP platforms, delivers highly optimized SIP platforms that address the unique requirements of rapidly growing market segments. Virage Logic's platform strategy is based on best-in-class memory, logic, I/O and design tools that meet the critical requirements of reducing silicon and manufacturing costs while boosting reliability and performance. The products include embedded memory, programmable and standard cells, and software tools.

The Virage Logic Custom-Touch memory compilers are a set of application-specific memory compilers used by system IC integrators to rapidly create hundreds of silicon-proven memory cores. Custom-Touch Memory Compilers provide high density, high speed, ultra-low power, and high yield embedded memories in the form of reusable IP needed in SoC designs. All Custom-Touch Memory Compilers are developed using custom memory design techniques to achieve industry-leading results in area, power and speed.

Virage Logic is listed on NASDAQ under the symbol VURL.



## R&D in the Institutions Operating in the National Academy of Sciences [www.sci.am](http://www.sci.am)

Institutions	Distinctive Characteristics, Strengths and International Collaboration
<b>Institute of Informatics and Automation Problems</b>	Specializing in activities including theoretical and applied investigations in the area of computer science and artificial intelligence, the institute was established in 1957. Main collaborative partners include University of Osaka (Japan); University of Tampere (Finland); University of Darmstadt (Germany) and the Research Institute of Automation and Computer Sciences of the Hungarian Academy of Sciences
<b>Institute of Mathematics</b>	Established in 1971, the main fields of activity include approximation theory along with mathematical problems of statistical physics. The Institute has organized several international conferences on functioning theory, integral geometry and mathematical physics. Extensive scientific collaborations are conducted with leading centers around the world including, University of Freiberg (Germany); University of Paris IX (France); Tsucuba University (Japan) and the Royal Institute of Technology (Sweden).
<b>Institute of Mechanics</b>	Established in 1955, the main fields of activity include mathematical theory of elasticity along with the theories of plasticity and viscoelasticity. Joint scientific investigations are carried out in collaboration with Berkeley University of California; Pierre and Mary Curie University of Paris and the University of Pavia, Italy.
<b>Institute of Applied Problems of Physics</b>	Established in 1980, areas of activity include the interaction of electromagnetic radiation and influence of external factors on physical properties of semiconductors and liquid crystals along with information exchange between biological objects.
<b>Institute of Physical Research</b>	Established in 1968, key activities include laser physics; high-temperature superconductivity; and crystal growth equipment.
<b>Institute of Radio Physics and Electronics</b>	Specializing in the area of radiophysics and solid state plasma physics, the institute, which was established in 1960, provides specialists engaged in the NATO "Science for Peace" project and plays a prominent role in environmental investigation and biomagnetic applications.
<b>Engineering Center</b>	Established in 1990, main activities include atomic optics; growth and investigation of non-linear optical crystals and therapeutic lasers.
<b>Special Experimental and Design Technological Institute</b>	Established in 1976, main activities include accelerometers, velocimeters and other seismic observation equipment.
<b>Garni Space Astronomy Institute</b>	Specializing in the development and manufacture of devices and astronomical complexes for space research, the institute was established in 1982.



## Research Departments in Yerevan State University and in the State Engineering University

### Yerevan State University (YSU)

Currently, YSU has collaborative agreements with 58 universities in 23 countries including the United States (Fresno, Riverside, Michigan, Northeastern and George Mason); France (Montpellier, Lyon, Marseilles and University of Paris); United Kingdom (University of London) and Germany (Rostock University).

YSU has 4 Key IT related Faculties:

Technological Faculties	Departments	Technological Faculties	Departments
Computer Science and Applied Mathematics	Applied analysis Algorithmic languages System Programming Discrete mathematics Maths methods/modeling Algebra in computer science	Radio Physics	Semiconductors and dielectrodes Super high frequency radio physics Quantum radio physics Higher mathematics
	Mathematics		Differential equations Mathematical analysis Theory of probabilities Algebra and geometry Theory optimal control

### State Engineering University of Armenia (SEUA)

With extensive campuses in Yerevan, Gyumri, Vanadzor and Goris, SEUA provides majors in 63 disciplines and hosts several advanced and extensive R&D facilities including:

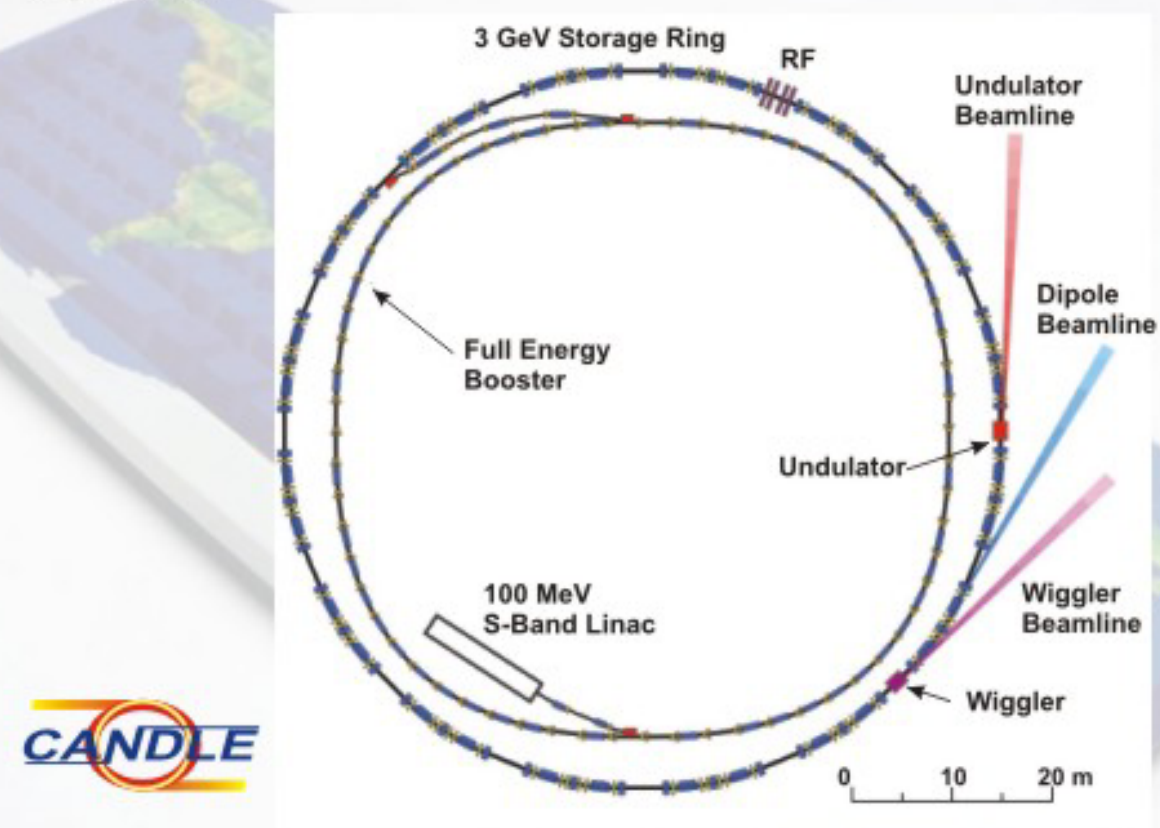
- ◆ Mathematical simulations and computer aided design;
- ◆ Fiber optics communications;
- ◆ Powder metallurgy and plating;
- ◆ X-ray diffraction of material structure analysis;
- ◆ Neutronal nets;
- ◆ Photoactive and semiconductor parameter measurement;
- ◆ Boundary value problems of differential equations;
- ◆ Tenzo-semiconductive transducers;
- ◆ Small power systems



## CANDLE Project [www.candle.am](http://www.candle.am)

The world's seventh third generation synchrotron radiation center will be in Armenia and is scheduled to be operational by 2007. The \$50 million investment on a 20 hectare site on the outskirts of the capital city, Yerevan, will produce light with special features permitting unprecedented industrial research and development studies covering a wide range of applications in pharmaceuticals, biotechnology, and, especially, microelectronics.

Armenia was selected because of the number of qualified scientists in physics, expertise of academic institutions and impressive track record in terms of successfully running the electron accelerator established in Yerevan in 1967. Funding for the project is courtesy of the US Department of State, European Union countries and Armenian Diaspora members.





## Business Environment

### Investment Climate

That the Armenian Government adopted the Law on Foreign Investment, entitling international companies to the same treatment as indigenous enterprises, almost ten years ago, reflects the deep rooted commitment to sustaining improvements to the investment climate in Armenia. As a consequence, the country's trade and investment policies are now recognized as the most "open" in the CIS by international organizations. Moreover, the World Bank assessment of policies and institutions currently ranks Armenia ahead of Poland and on par with the new members of the European Union from the Baltic States.

According to the World Bank's report "Doing Business in 2004", which compares the business climate in different countries using a range of indicators, Armenia rates in a comparatively high position. (For detailed information see [www.rru.worldbank.org/DoingBusiness/ExploreEconomies/BusinessClimateSnapshot.aspx?economyid=10](http://www.rru.worldbank.org/DoingBusiness/ExploreEconomies/BusinessClimateSnapshot.aspx?economyid=10)).

In the World Bank Report on "Corruption in Enterprise-State Interactions in Europe and Central Asia" Armenia is ranked as the 5th least corrupt country out of 26 transition countries in Eastern Europe and Central Asia. Armenia is ranked as being less corrupt than such countries as Czech Republic, Russia, Latvia, and Poland.

Sound fiscal and monetary policies have manifested themselves in exceptionally low inflation (average rate of 4.5% between 2001 and 2003), impressive GDP growth (average rate of 12.1% for the same period) and a stable currency which is freely convertible. During the period 1999 to 2003, average annual export growth was 26.4%. Armenia became a member of the Council of Europe and, importantly, in December 2002, joined the World Trade Organization.

### IP Rights

Armenia has created a modern system that protects Intellectual Property rights. Currently, intellectual property related matters in Armenia are regulated by the Civil Code, the law on copyright, the law on patents, the law on trademarks, service marks and appellations of origin, and the law on protection of topographies of integrated circuits, as well as by a number of international treaties. Armenian legislation on IP has been harmonized with the requirements of the Agreements on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreements).

### Telecommunications Infrastructure

While there is still scope to improve the telecommunications infrastructure, the operator, ArmenTel ([www.armentel.com](http://www.armentel.com)), primarily owned by the Greek company OTE, has to date invested around USD235 million and approximately 70% of the Yerevan network has been digitalized and 42 % of Armenia telephone network has been digitalized. In terms of GSM, roaming agreements have been established with over 135 operators in 66 countries.

Currently Armenia is connected internationally by about 1200 circuits, including satellite, fiber-optic and radio. Satellite communication is being provided by two earth stations, via the Intelsat and Express satellite systems. Fiber-optic communication is through Trans Armenia Optical Network (TAOS), which is connected with the Georgian Optical Highway in the North, giving access to Russia and Europe through the Black Sea, and onward to worldwide optical networks.

In line with the plans of the International Telecommunication Union Development Bureau for the development of worldwide communications Armenia is participating in BSFOCS, Trans-Asia-Europe optical systems.

### Real Estate / Technology Parks

The Armenian Development Agency (ADA) maintains a database of greenfield and brownfield property options that are available for investors. There are three high tech facilities currently available in Yerevan and details on these are given below.

### Viasphere Technopark

Viasphere Technopark, a subsidiary of Viasphere International headquartered in California, USA, is a state of the art technology park located in Yerevan, Armenia.

Viasphere International is a Silicon Valley based incubator and accelerator with a proven track record in building successful high technology startups and multinationals. Viasphere is affiliated with venture and angel funds as well as industry groups and universities in the US, Europe and the Far East.

Viasphere Technopark is centrally located in Yerevan and has been operating since 2001. Currently it hosts several successful US-based subsidiaries and Armenian origin startups developing advanced software in a variety of fields.

Viasphere Technopark provides companies, in particular startups, with strategic advantages. In Armenia, Viasphere Technopark interacts with technical universities and institutes in areas of advanced research. With facilities, infrastructure, and support services already in place, companies can achieve speed to market with minimal startup costs.

Viasphere Technopark has access to highly qualified software development talent in the following fields of IT:

- ◆ Electric Design Automation (EDA) Software
- ◆ Computer Aided Design (CAD) Software
- ◆ Security and Encryption
- ◆ Business Process Management
- ◆ Network Management
- ◆ Embedded Software
- ◆ Educational and Gaming Software
- ◆ Web Infrastructure

In addition to providing a vital bridge to Silicon Valley, USA, Viasphere Technopark provides the following facilities, infrastructure and support services to companies for cost effective speed-to-market and scalability:

- ◆ 8,000 square meters of office space situated on 2 hectares of land with planned expansion to 28,000 square meters.
- ◆ High speed Internet access
- ◆ Clean room development environment
- ◆ Cafeteria services including catering for on campus events
- ◆ Library Facilities
- ◆ Convention facilities and fitness club (planned)
- ◆ Security with 24x7 access



## Enterprise Incubator Foundation (EIF)



EIF provides office space and services to IT companies. The list of facility services includes the following options:

- ◆ Lease of space of various sizes
- ◆ Shared meeting and conference rooms with equipment
- ◆ Shared resource center with access to literature, on-line databases, etc.
- ◆ Shared printer, fax, and copier services
- ◆ Local area network and high-speed Internet connection
- ◆ Security with 24x7 access
- ◆ Parking facilities

The Incubator facilities are located at the Russian-Armenian (Slavonic) State University, 15 minutes drive from the Republic Square. The facilities occupy 4 floors with total space of 1,900 square meters.

## Citadel

Citadel is a new business park in the center of Yerevan, owned by Leda Holdings, TX, USA. It will open in 2005. Citadel is designed as a state-of-the-art, multi-purpose real estate facility supporting business, education and entertainment and offering a wide range of rental possibilities for foreign and local businesses. The facility includes:

- ◆ High quality office space for rent totaling 10,132 square meters
- ◆ Communications: Telephone system with block terminal provision inside each tenanted area; High-speed DSL and T1 Internet wired/wireless connection
- ◆ Fully serviced executive offices, meeting rooms, R&D areas with complete facilities
- ◆ Individually controlled air-conditioning and built-in air purging systems
- ◆ Overall building automated services management and high-class security systems
- ◆ Professional administrative support services

## Cost Efficiencies

Utility costs and corporation tax, at only 20%, are among the lowest in Europe. Moreover, tax breaks, when fixed capital investment exceeds \$1 million, further enhance the profitability of establishing a business in Armenia.

## Customs Regime

Armenia has a liberal foreign trade regime with a transparent "two-band" import tariff (at 0% and 10%) and is fully compliant with WTO rules. There are no import duties on capital goods (included within the master list defined by the Government of Armenia) and inward processing relief facilities are available [www.customs.am](http://www.customs.am).



## Armenian Development Agency



The Armenian Development Agency (ADA) was established by the Government of Armenia to facilitate foreign direct investment and promote exports. The Prime Minister of Armenia is the chairman of the board. The ADA acts as a "one-stop shop" agency for investors assisting them in setting up their business in the country, helping with project implementation, performing a liaison role with the Government, providing information on investment opportunities in the country, as well as investment related regulations and laws. In its export promotion activities the ADA helps to find export markets for products, undertakes market studies and seeks out partners for joint ventures aimed at increasing the volume of exports.

## Business Support Council

To provide an effective mechanism to monitor the improvement in the investment climate, the Business Support Council (BSC) was established by a Presidential Decree in early 2001, and the Armenian Development Agency was appointed the secretariat to act as an intermediary for the business community. Chaired by the Prime Minister, the evenly balanced private/state membership (the Chief Economic Adviser to the President, the Ministers of Trade and Economic Development, Finance and Economy, the Mayor of Yerevan, the Executive Director of ADA and six representatives from the business community on a rotation basis) represents a powerful and influential vehicle to improve the business and investment environment and eliminate administrative barriers to investment.

## Government Commitment to IT/ IT Development Support Council

In December 2000, the Government of Armenia declared the development of ICT as one of the priorities for the Armenian economy. In 2001 by the order of the President of Armenia the IT Development Support Council [www.itdsc.am](http://www.itdsc.am) was established with the Prime Minister as the chairman and the ADA acting as Secretariat. The main goals of the Council are:

- ◆ To integrate Armenia into global ICT markets and societies
- ◆ Further develop a strong and competitive ICT sector in Armenia as a key component of economic growth
- ◆ To assist the development of Information Society in Armenia

The council serves as a bridge between the ICT public and private sectors.

## Multilateral Investment Guarantee Agency

The Multilateral Investment Guarantee Agency (MIGA) is a member of the World Bank Group and promotes foreign direct investment into emerging economies through:

- ◆ Political risk insurance;
- ◆ Advisory and capacity-building services for investment promotion intermediaries; and
- ◆ Online information on investment opportunities worldwide.

It is widely recognized that the investment climate in Armenia has improved dramatically in recent years. However, to further enhance investor confidence, attention is drawn to the fact that MIGA can provide political risk insurance, guaranteeing new, cross-border investments, as well as investments associated with expansion, modernization, or financial restructuring of existing projects, and acquisitions involving privatization of state enterprises. [www.miga.org](http://www.miga.org)

## USEFUL LINKS ABOUT ARMENIA

**THE CENTRAL BANK OF ARMENIA**  
[www.cba.am](http://www.cba.am)

**STATE PROPERTY MANAGEMENT DEPARTMENT** responsible for the privatization of state property  
[www.privatization.am](http://www.privatization.am)

**STATE TAX SERVICE**  
[www.taxservice.am](http://www.taxservice.am)

**STATE CUSTOMS COMMITTEE**  
[www.customs.am](http://www.customs.am)

**NATIONAL INSTITUTE OF STANDARDS**  
[www.sarm.am](http://www.sarm.am)

**THE STATE COMMISSION FOR THE PROTECTION OF ECONOMIC COMPETITION**  
[www.competitionpolicy.am](http://www.competitionpolicy.am)

**INTELLECTUAL PROPERTY AGENCY OF THE REPUBLIC OF ARMENIA**  
[www.armpatent.org](http://www.armpatent.org)

**INFORMATION TECHNOLOGIES DEVELOPMENT SUPPORT COUNCIL**  
[www.ildsc.am](http://www.ildsc.am)

**THE NATIONAL ACADEMY OF SCIENCES OF ARMENIA**  
*NAS is the highest state scientific self-governing organization which unites NAS Members and scientific staff of affiliated scientific and research institutions.*  
[www.scl.am](http://www.scl.am)

**STATE ENGINEERING UNIVERSITY OF ARMENIA**  
[www.seua.am](http://www.seua.am)

**UNION OF INFORMATION TECHNOLOGY ENTERPRISES OF ARMENIA**  
[www.uite.org](http://www.uite.org)

**OPEN SOURCE ARMENIA**  
[www.opensourcearmenia.com](http://www.opensourcearmenia.com)

**YEREVAN STATE UNIVERSITY**  
[www.yasu.am](http://www.yasu.am)

**ARMENIA - INFORMATION** a web site of the Armenian Tourism Development Agency providing information for visitors to Armenia  
[www.armeniainfo.am](http://www.armeniainfo.am)

**ARMENIA DEVELOPMENT GATEWAY**  
*Armenia Development Gateway supports the knowledge-based development of Armenia by promoting the use of the Internet and other information communications technologies.*  
[www.gateway.am](http://www.gateway.am)

**SILICON ARMENIA - HIGH TECH PORTAL**  
*dedicated to the development of Armenia's High-Tech and ICT industry*  
[www.siliconarmenia.com](http://www.siliconarmenia.com)

**EUROPEAN UNION CHAMBER OF COMMERCE IN ARMENIA (EUCCA)**  
[www.eucca.am](http://www.eucca.am)

**AMERICAN CHAMBER OF COMMERCE IN ARMENIA**  
[www.amcham.am](http://www.amcham.am)

**ENTERPRISE INCUBATOR FOUNDATION**  
[www.eif-it.com](http://www.eif-it.com)

**CANDLE project** - center for the advancement of natural discoveries using light emission  
[www.candle.am](http://www.candle.am)

**THE WORLD BANK GROUP**  
[www.worldbank.org](http://www.worldbank.org)

**EBRD**  
[www.ebrd.com/country/country/armenia/signed/armen03.pdf](http://www.ebrd.com/country/country/armenia/signed/armen03.pdf)

**AEPLAC: Armenian-European Policy and Legal Advice Centre**  
[www.aeplac.am](http://www.aeplac.am)

## MINISTRIES

**MINISTRY OF TRADE AND ECONOMIC DEVELOPMENT**  
[www.minted.am](http://www.minted.am)

**MINISTRY OF FINANCE AND ECONOMY**  
[www.mfc.am](http://www.mfc.am)

**MINISTRY OF FOREIGN AFFAIRS**  
[www.armeniaforeignministry.com](http://www.armeniaforeignministry.com)

**MINISTRY OF ENERGY**  
[www.minenergy.am](http://www.minenergy.am)

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Yerevan City View