ARMENIAN ICT SECTOR

STATE OF INDUSTRY REPORT

2012
ARMENIAN INFORMATION AND COMMUNICATION TECHNOLOGY SECTOR

ARMENIAN ICT SECTOR

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USAID FROM THE AMERICAN PEOPLE

EDMC Enterprise Development & Market Competitiveness Project

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Content

ADSL
Asymmetric Digital Subscriber Line

AUA
American University of Armenia

CIS
Commonwealth of Independent States

CMMI
Capability Maturity Model Integrated

ECM
Electronic Computing Machine

EDA
Electronic Design Automation

EIF
Enterprise Incubator Foundation

EU
European Union

GDP
Gross Domestic Product

GOAM
Government of Armenia

ICT
Informationand Communication Technologies

IT
Information Technology

LLC
Limited Liability Company

NAS
National Academyof Sciences

NGO
Non-governmental Organization

PSRC
Public Service Regulatory Commission

SEUA
State Engineering Universityof Armenia

SME
Small and Medium Enterprises

UN
United Nations

USA
United States of America

USSR
Union of Soviet Socialist Republics

VAT
Value Added Tax

YSU
Yerevan State University

FOREWORD

The Ministry of Economy
of the Republic of Armenia

Vahram Avanesyan

Minister of Economy of the Republic of Armenia

The Information Technology (IT) industry is one of the fastest growing industries of the Armenian economy. In 2000, the Government of Armenia recognized the sector as the primary constituent of the country's economic progress. Over the last decade, the IT sector can prove its growing importance for the country by making a huge contribution to economic growth, creation of value added jobs, and improvement of the country's image.

Armenia's rich research, educational traditions, and skilled human resources have played an important role in attracting numerous global technology firms to establish their branches and R&D centers in Armenia.

The R&D and software development centers of various high-tech companies from Europe, Russia, and the USA are already based in Armenia. These facilities work on cutting edge technologies and tools to develop new products and services or solve a variety of business problems.

In partnership with the private sector, the Government of Armenia focuses on and strongly supports the Information Technology industry by implementing this industry development strategy, adopted by the Government in 2008. The main goals of this strategy are to develop technology and business incubation infrastructure, improve the quality and increase the number of technical graduates, and to expand support and financing mechanisms for technology start-ups. Furthermore, successful implementation of this strategy will strongly contribute to the competitiveness of the Armenian IT industry and its ranking thereof amongst other technologically advanced nations of the world.

FOREWORD

USAID FROM THE AMERICAN PEOPLE

EDMC Enterprise Development & Market Competitiveness Project

Bruno Cornelio

USAID/EDMC Chief of Party

The Enterprise Development and Market Competitiveness (EDMC) Project is a five-year project (2011-2016) funded by the US Agency for International Development (USAID). EDMC aims to ensure sustainable economic growth in Armenia through supporting the development of small and medium-sized enterprises (SMEs), increasing employment, promoting exports and income growth, improving Armenias business environment, and attracting investment to develop competitive sectors in High Technologies, Pharmaceuticals, Food Processing (fruits, vegetables, and herbs), and Hospitality.

In the high-tech sector, EDMC carries out targeted interventions in order to develop cross- sector synergies and encourage the development of innovative ideas, promote Armenian high- tech products in international markets, and support the development of skilled specialists.

In 2012, EDMC supported the Enterprise Incubator Foundation (EIF) to redesign the methodology of the ICT Industry Baseline Survey. Together with EIF, EDMC experts developed and designed the survey procedures for the collection and processing of the baseline data, prepared questionnaires and formulated the survey methodology for two sub-sectors: software and services, and Internet services and telecommunications. With this new methodology, the survey highlights the current situation in the ICT sector by collecting company level data from ICT companies operating in Armenia.

We hope this report will be used by many parties, such as the Government of Armenia, donors, private companies and SMEs, as well as academic institutions and students, to not only analyze the performance and state of the ICT sector in Armenia, but to also act upon this information by developing sector growth strategies to draw investment, creatingnew jobs, and increasing exports.

FOREWORD

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ENTERPRISE INCUBATOR
FOUNDATION

Bagrat Yengibaryan

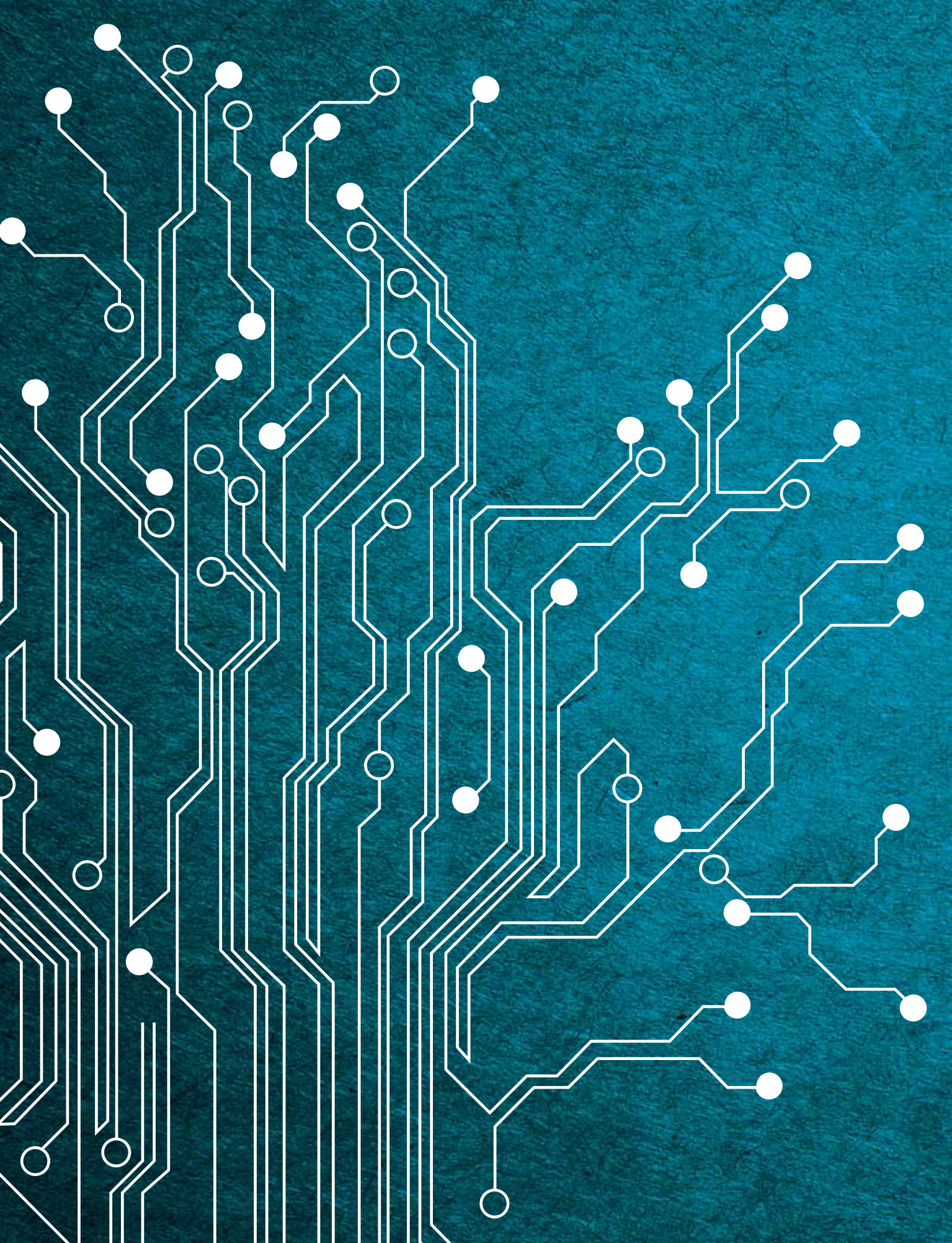
Director of EnterpriseIncubator Foundation

The Enterprise Incubator Foundation (EIF) was established in 2002 within the framework of the World Bank Enterprise Incubator project and supports the development of the information and communication technologies (ICT) sector in Armenia, by creating a favourable environment for the promotion of innovation, advancement of technologies and development of companies.

Our main goals are to increase competitiveness of Armenian ICT sector companies ininternational markets, establish business ties for public and private institutions and government agencies, large multinational organizations and small start-up companies, deliver best international practices and knowledge to local companies, as well as help these companies attract foreign and local investment. EIF has been implementing research on the IT sector in Armenia since 2002 in order to reveal its development potential, existing impediments, and needs.

In 2012 we had several success stories in the Armenian Information and Communications sector, including the increase in the total turnover and export growth, establishement of new local and foreign companies, and the successful implementation of endeavors directed at the overall development of the sector, including the Microsoft Innovation Center, Armenian-Indian ICT Center for Excellence, and the Mobile Solutions Regional Laboratory. In addition, we have had very important achievements in the sector in 2012, including the establishement of the National Engineering Laboratory, creation of the Armenian IT Representation in Silicon Valley, USA, as well as several projects that are being implemented within the framework of cooperation with several multinational organizations.

It would not have been possible to carry out the respective research without multiple interviews with the managing and professional staff of the IT companies, teaching staff of higher education institutions that prepare ICT professionals, representatives of development agencies and others. We are grateful to all of them for their contribution and time.



CHAPTER 1.

ARMENIAN ICT SECTOR

1.1 INDUSTRY OVERVIEW

IT and high-tech innovations and their commercialization by various industrial sectors have been a determining factor in the rapid pace of global economic growth over the last decade. As the Soviet Union's main hub for software development, industrial computing, electronics, and production of semiconductors, Armenia has kept its huge potential for technology development and continues to be the regional leader in IT and high-tech industry due to its competitive labor, its share in GDP, as well as the constant growth of number of companies and total turnover.

The technical workforce of Armenia creates a favorable investment climate for large ICT companies and multinationals: it is calculated that the average annual productivity produced by these competitive specialists for their companies amounts to USD 37,000.

Armenian ICT companies specialize in embedded software development and semiconductor design, customized software and outsourcing, financial software, multimedia, web design, information systems and system integration. Armenia has recorded significant achievements particularly in the area of semiconductor design and creation of related objects of Intellectual Property. Accomplishments in this sphere include the growth in number of startups created, value-added generated by these companies, as well as the number of employees. Today, there are about 360 ICT companies operating in Armenia, generating an average annual growth of 23%. About 90% of these companies are based in Yerevan, though the number of companies operating in the other regions of Armenia is growing annually (CAGR for 2008/2012 is 19.8%), owing to development of educational and scientific infrastructure within regional development projects. In particular, technology advancement and ICT training centers in Shirak and Lori regions will lead to economic development in the regions.

The Report on Armenias Information and Communications Technology sector has been produced since 2002 and has the goal of promoting a deeper understanding of ICT sector development and to implement targeted events to meet the challenges identified during the study.

1.2 BUSINESS AND LEGAL FRAMEWORK

The Government of Armenia approved the Information Technologies Industry Development Concept In the GOAM Decree #35 (August 28, 2008). The Concept's objective is to review, refine and add to the industry's legal framework, enabling the development of and placing priority on the IT sector and promoting the formation of e-society, as well as determine and enforce the following trends: spur of investments, support to start-ups, copyright protection, streamlining of business registration process, reform of tax and customs administration, simplification of import and export mechanisms for ICT tools and products, and others.

BUSINESS ENVIRONMENT

The following are Armenias major taxes. They are considered rather low compared to those adopted in many other countries:

MULTILEVEL PERSONAL INCOME HAS THE MAXIMUM RATE OF 36%

VALUE ADDED TAX (VAT) IS 20%

CORPORATE TAX RATE IS 20%

Around 20% of ICT companies are involved in activities subject to licensing, i.e. data transfer and internet access services. The RA Law On Licensing provides the list of business activities subject to licensing. Armenia offers several incentive programs for foreign investors. In particular, no duties on statutory capital, no barriers on investment entry, and a 5-year investment protection clause in the Law on Foreign Investments. Additionally, companies operating in Armenia have an option to carry forward their tax losses to the coming five years.

There are also incentives available to exporters such as no export duty, and VAT refunds on goods and services exported. Imports of a few IT products are exempt from customs duties and taxes; VAT is deferred on some products. According to the Armenian Customs Code, the value of contents of computer software is not included in the customs value, which is limited only to the value of the carrier media. This provision is in accordance with WTO and GATT (General Agreement on Tariffs and Trade) customs valuation agreements.

KEY INDICATORS FOR OPENING AND OPERATING A BUSINESS IN ARMENIA[1]

INDICATOR	ARMENIA	EUROPE & CENTRAL ASIA	OECD COUNTRIES
Starting a Business: *Time (Days)*	8	11	10
Starting a Business: *Cost (GDP Per Capita, %)*	2.5	3.8	4.5
Hiring Cost: *(% of Salary)*	17.5	26.7	21.4
Firing Costs: *(Weeks of Wages)*	8.7	26.2	31.3
Enforcing Contracts: *Time (Days)*	440	510	414
Enforcing Contracts: *Cost (% of Debt)*	19.0	25.8	20.1

[1]Source: **The World Banks Doing Business database, http://www.doingbusiness.org**

LEGAL FRAMEWORK

The following gives an outline of the current legal framework of the ICT sector:

The annual program aimed at enhancement of business environment in Armenia was adopted on March 7, 2013 by the Government of Armenia. During 2012, a number of reforms were carried out within the framework of the relevant program adopted for 2012. Reforms approved by the aforementioned decision include many of particular interest for ICT companies, especially those aimed at the improvement of business and investment environments including completed and ongoing reforms on tax payments, foreign trade, company establishment procedures, issuing construction permits, enforcing contracts, issuing loans, protection of investors, property registration, and company closing/liquidation.

Considering the necessity to minimize the paperwork and simplify the registration process for duties in the Republic of Armenia, the decision was made in 2012 to review the defined list of required documents and information and the procedure of presenting them to Customs Control. The review resulted in the simplification of customs administration procedures for business entities and shortened the previously time-consuming process of submitting extensive documentation.

STATE REGISTRATION

The state registration of legal entities and sole proprietors in Armenia is seen as a simplified process. The large majority of legal entities operating in the IT sector (92.3%) state that they had not faced any difficulty in registration, and their registrations had been approved after the submission of documents without any corrections or additional documents.

To improve the administration and to streamline the registration procedures for legal entities and sole proprietors further, Armenian laws allow the State Register to render online services for electronic submission of documents required for registration.

LICENSING

The RA Law on Licensing Article 43.10 stipulates the types of ICT related activities subject to licensing under the general title of Telecommunications (electronic communications) sector.

The RA Law on Electronic Communication covers the list of licensed businesses and streamlines the licensing process, facilitating a transition from a complicated to a simple licensing procedures.

At the same time, a number of strict requirements are in place to control the quality of professional services, particularly:

- The quality check is required even upon licensing by simple procedure.
- Licenses for almost any type of Telecommunication (electronic communication) businesses are granted by the
- Public Services Regulatory Commission (PSRC), and this is the only case when the application for licensing by simple procedure has to be filed with the PSRC, rather than the RA Ministry of Finance.
- Licensed entities have to submit specific reports and information.
- A specific requirement is established for each business location for all four types of licensed businesses.
- No license is required for telecommunication activities (apart from TV/Radio broadcasts), where such activities are carried out for a non-commercial purpose.

CERTIFICATES AND PERMITS

In 2008, the Government of Armenia removed ICT products from the list of products subject to mandatory certification, which means that no certificate is required for import, sale and operation of ICT products in Armenia (though this does not exclude the voluntary certification). According to standardization laws, usually the Government of Armenia issues decrees to establish technical regulations: i.e. standard set of requirements for a product or a service. The adequacy certificate confirms that the product is consistent with the technical regulation. For that purpose, the Government develops schemes and identification codes. Mandatory certification is needed only for base stations (CNEEA 8517 61 000), audio/video and other data receivers, transformers and transmitters, including routers and switchboards (CNEEA 8517 62 000) and transmitting devices containing receivers (CNEEA 8525 50 000 and 8525 60 000).

At present, the institute of permits operates mainly for the use of radio frequencies and is regulated by the RA Law on Electronic Communication, and the legal acts approved by the Public Services Regulatory Commission of Armenia. The radio frequency operation permits are granted to parties using radio equipment working in the range of above 3 kHz and below 1000 GHz, with a number of exclusions.

The maximum period of permit is ten years.

PROTECTION OF INTELLECTUAL PROPERTY

IT companies can be the legal owners of intellectual property with regard to objects of industrial property and copyright. For IT companies, software and artwork (websites) are the main objects of copyright, while trade or service marks and useful models and industrial designs are objects of industrial property. IT companies show a growing interest in copyrights and protection thereof, due to the advanced legal framework applicable at present.

Under RA laws, all copyrights are reserved to the client (employer), and the compensation of the author is regulated by the agreement signed with the latter. Under European law, the author is normally paid a royalty. US laws tend to view the employment (creativity) of the author with the employer as the outcome. Under RA laws, the royalty is not deemed mandatory either, although it can be established on a contractual basis.

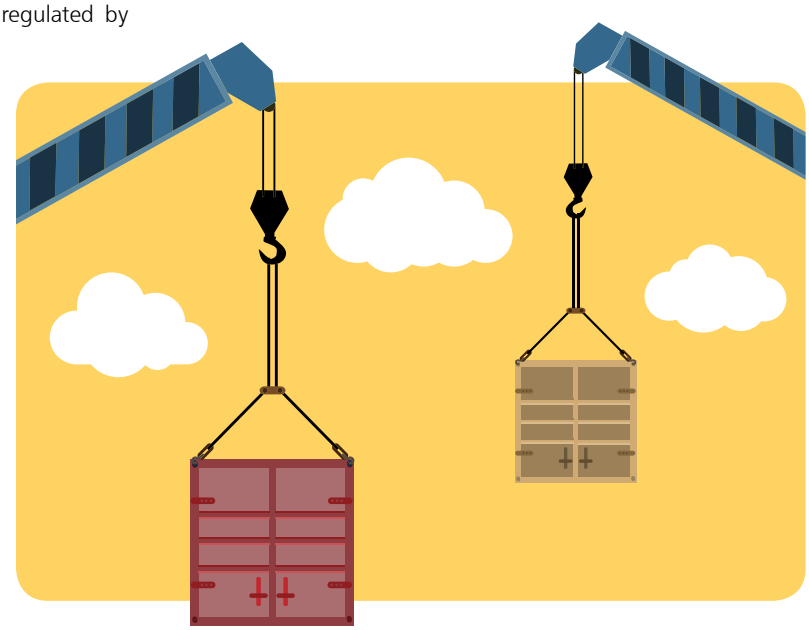
With regard to the patent protection of software by ICT companies, the latter is deemed patentable only when it is a component of any process, and the invention can be described as a process managed by unique software. Such a description is rather complicated and requires certain skills, which in turn requires the improvement of expertise of the Armenian patent attorneys and experts of the Intellectual Property Agency.

IMPORT OF GOODS, EXPORT OF PRODUCTS AND SERVICES

More than a half of ICT companies import goods for their own use and for resale. Computers and accessories are the main articles of import, and ICT companies import these for their own use rather than for resale. Most ICT companies, while clearing through customs, are able to pay the custom duties and independently declare and import the goods. Several ICT companies have problems or make mistakes while completing the customs declarations independently and have to incur extra costs due to penalties and other charges. Consequently, they use the services of customs brokers.

50% of ICT companies export products or services, primarily software, software applications, and websites. Products and services other than the aforementioned comprise a small portion of exports.

Given the specifics of the exported products and services, normally the export is performed through the Internet. Another popular method of exporting products/services is mailing. Taking into account the peculiarities of the exported products and services as well as their export, the better half of the exporting ICT



companies incurs next to no expense, and no component of the export procedure is characterized as problematic or complicated. To limit the subjective approach in estimation of the customs value under the RA Customs Code Article 87, the Government of Armenia Decree #853-N of June 23, 2011 made an amendment to the Appendix of its Decree #2170-N of December 5, 2002 on Approval of Explanatory Notes for Estimation of Customs Value Clause 1.1, as follows:

"Within two business days from disclosure of documents under the RA Customs Code Article 87, the customs authority shall approve or reject the customs value estimated by the method specified in Article 87 for products transported through customs

zone. Upon rejection of the customs value estimated under Article 87 within the period specified herein, the customs authority shall give a written notice to the applicant stating the grounds for rejection. Unless the customs authority takes a decision on rejection of the customs value estimated under Article 87, the customs value presented by the applicant shall be deemed as accepted.

COMPULSORY PAYMENTS AND TAXATION

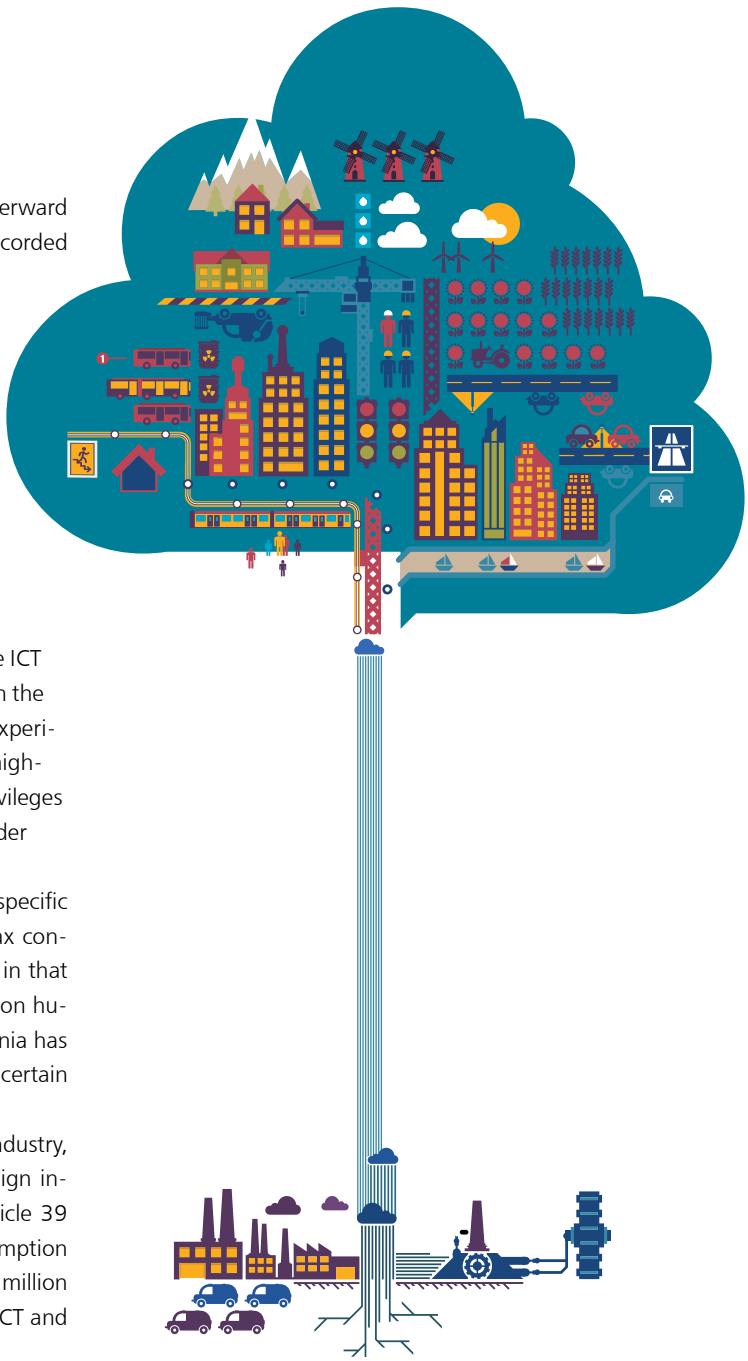
The ICT companies have to pay firstly income tax, afterward profit tax, VAT and property tax. Major taxation issues recorded in the survey were VAT and profit tax.

FAVORABLE ENVIRONMENT AND FOREIGN INVESTMENTS

It is important to create a favorable environment for the ICT industry to gain momentum, which should be expressed in the form of concessions in tax and compulsory charges. The experience of countries having achieved success in the ICT and high-tech industry in a short period proves that only specific privileges facilitate investments in the industry and faster growth under common conditions.

To provide targeted privileges, it is reasonable to create specific technological zones and grant both direct and indirect tax concessions only to ICT companies or high-tech firms based in that zone. Moreover, given the issues of deficit and the drain on human resources frequently raised by ICT companies, Armenia has to consider income tax concessions firstly and if possible certain reductions of compulsory social contributions.

Taking into account the significant potential of the industry, it is also essential to create favorable conditions for foreign investments. The restoration of RA Law on Profit Tax (Article 39 adopted in 1998) which provided for the full or partial exemption of profit tax for foreign investments exceeding AMD 500 million made in a residents capital, would attract investments in ICT and high-tech industries.



1.3 COMPETITIVE ADVANTAGES

Armenia is a favorable country for foreign direct investments in the ICT sector due to the following competitive advantages over other countries in the region:

- World-class R&D capabilities in engineering, computer science, physics, and mathematics;
- Well-educated and talented workforce with technical skills and English language proficiency;
- Strong university programs with specializations in IT and related sciences;
- Highly competitive cost of labor and low operating costs;
- Solid government support of the sector and commitment to improve the investment climate;
- Sustainable and continuous growth of the IT sector;
- Strong and successful Diaspora network in Europe and North America;
- Extensive experience with large multinational companies;
- Sound laws and regulations for IP protection corresponding to international standards.

1.4 SURVEY SAMPLE AND METHODOLOGY

For our 2012 research, the survey population was expanded by 28% over 2011 to include approximately 360 Armenian ICT companies (according to NACE rev.2 classification). To account for the increase of the survey pool the data available for 2011 was refined accordingly.

INFORMATION AND DATA

Interviews conducted with industry representatives were key sources of data and information used in this report. A growth model was used to fill in missing data. Based on our experience with the industry and estimates provided in other reports, publications, and sources, we strongly believe that the Report offers a reliable description of the industry, its main trends and characteristics, as well as overall prospects.

DEFINITIONS

The Software and Services segment of the Information Technology industry is defined as the cluster of companies that are engaged in software development and maintenance; provision of software related services, consulting and integration; development of graphics, animation, multimedia applications; chip design; and provision of engineering and R&D services. Internet service providers offer access to the internet (wholesale and/or retail) through various channels. This group includes VoIP businesses and companies providing web hosting and web portal services. While companies included in our research may be engaged in a number of other activities within the technology sector, the two components listed above generate the major share of the firms revenues. Therefore, only software and ISP segments of those companies were used in estimating industry figures.

Local companies are defined as Armenia-based enterprises with at least 51% of their equity owned by citizens or permanent residents of Armenia or locally owned firms. Foreign branches or companies are defined as Armenia-based enterprises, with at least 51% of their equity owned by foreign citizens, residents, or firms.

ASSUMPTIONS AND ESTIMATION METHODS

Productivity was estimated based on the annual revenues per employee. Two sets of figures were calculated: one was a mere division of all industry revenues by the total workforce; the other was the annual revenue of each company per employee, which was then averaged for the total industry using revenues as the weight factor. While the second estimation provides a better picture of the productivity, it complicates the forecasting of the industrys growth. Therefore, industry projections are estimated using the first set of figures. Productivity calculations were made only for software development companies.

Workforce figures were estimated by taking into consideration the number of technical and business or administrative specialists of companies in the Software and Services segment, as well as technical employees of ISPs.

THE 2012 SURVEY COVERED A SAMPLE COMPROMISING 150 SOFTWARE, IT CONSULTING, AND INTERNET SERVICE FIRMS, AND ICT RELATED FACULTIES OF MAJOR EDUCATIONAL INSTITUTIONS.

Market research Data Analysis and Industry Survey Report - Sona Kochkanyan, EIF

Information Technology market and policy research - Zhenya Azizyan, EIF

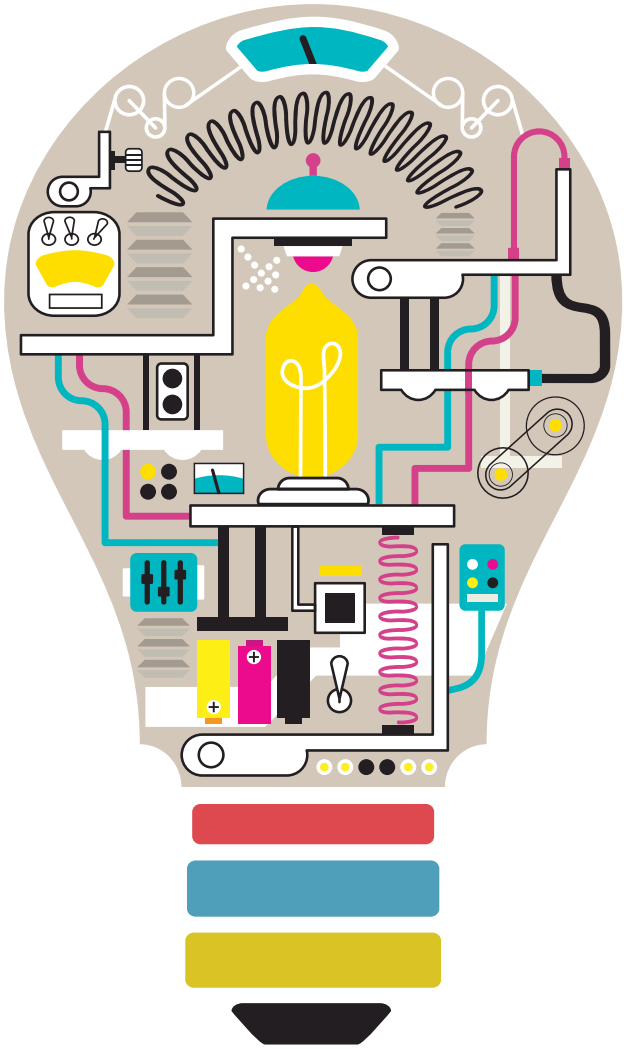
Analysis of legal framework related to the Information Technology sector - Aram Khachatryan, EIF

Report translation - Kristine Arshakyan, EIF

Methodology and Key Data Analysis - Madan Gopal Singh, USAID Enterprise Development and Market Competitiveness (EDMC) Project

Report editing and proofreading - Zara Sargsyan, Communications Specialist; Paul Vartan Sookiasian, Young Professional; David Stein, Young Professional, USAID EDMC Project

Task Leader - Levon Galstyan, IT & High Tech Senior Expert, USAID EDMC Project



OUTLINE OF INDUSTRY SURVEY

This report is based on an industry-wide survey conducted by EIF in November-December 2012. The survey covered three main groups: companies engaged the in Software and Services segment, Internet Service Providers, and ICT related faculties of major educational institutions. The survey included a number of areas important to the development and growth of the industry such as business and legal environment, revenues, educational framework, human resources, exports, and others. The report also uses information from previous industry surveys conducted by EIF between 2003 and 2011.

1.5 MAIN FINDINGS

There are 360 companies in the Armenian ICT sector, 33 of which operate in the telecommunications sector. The rest of the companies specialize in the Software and Services segment. As of 2012, turnover of the Armenian Software and Services sector amounted to around USD 244.3 million, and ISPs turnover was USD 76.6 million. The total turnover of the Armenian ICT sector grew by 23% compared to the last year.

Workforce employed by the sector reached 9,354. Average annual productivity of 7,005 technical specialists of this workforce amounted to USD 37,286.

The below chart shows 2012 main indicators of the Armenian ICT sector:

DISTRIBUTION OF COMPANIES AND THEIR REVENUE BY SPECIALIZATIONS, 2012 DATA

SPECIALIZATION	COMPANIES, %	REVENUE, MILLION USD
Software and Services	327	244.35
58.2 Software publishing	17.7%	22.8
58.21 Publishing of computer games	8%	7.1
58.29 Other software publishing	9%	15.7
62.0 Computer programming, consultancy and related activities	82.3%	211.4
62.01 Computer programming activities	64%	138.2
62.02 Computer consultancy activities	23%	29.8
62.03 Computer facilities management activities	24%	27.7
62.09 Other information technology and computer service activities	13%	25.7

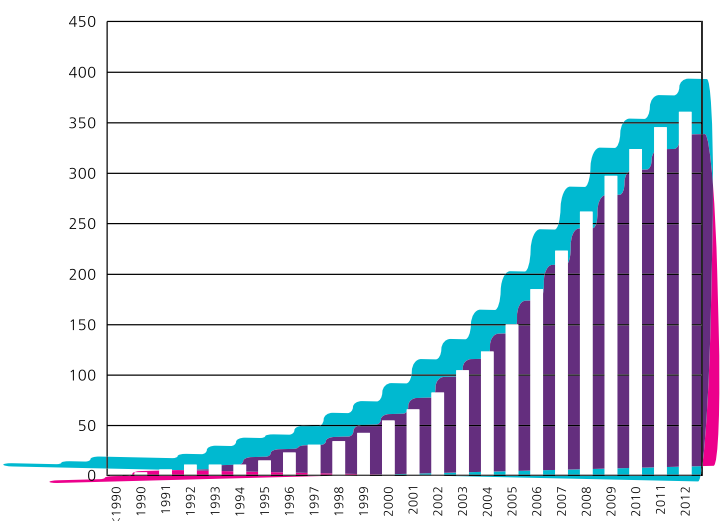
1.6 SOFTWARE AND SERVICES

1.6.1 ECONOMIC INDICATORS

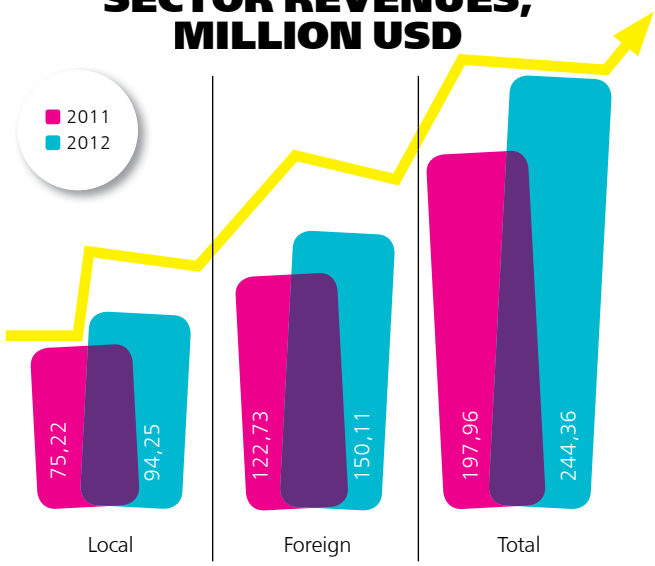
Armenias software and services industry is rather young: the large majority of the companies, nearly 80%, were founded between 2000 and 2012. The first local private software firm was established in 1987, and within 5 years the first foreign ICT company branch was launched in Yerevan. 1991-1997 was a tough transitional period for the technology sector; regional conflicts, collapsed economy, brain drain all had considerable effects on the revival of the industry. In 1998, around 35-40 software firms and ISPs were operating in Armenia and employed, according to various estimates, nearly 1,000 specialists. The size of the workforce was notably smaller in 1998 compared to that observed in 1987 when YerSRIMM alone employed up to 10,000 people.

Over the last 11 years, the industry saw a sharp increase in the number of newly formed companies, both local start-ups and branches of foreign companies.

ICT COMPANIES BY YEAR OF ESTABLISHMENT



DISTRIBUTION OF SOFTWARE AND SERVICES SECTOR REVENUES, MILLION USD



The number of operating ICT companies in 2012 reached 360, representing a 4% growth over 2011. On average, nearly 22 ICT businesses were launched annually in 2000-2012. This was in sharp contrast to the 1990s when only 5-6 companies were formed each year.

At the peak in 2008, the annual number of newly started firms reached around 30. Those high rates, however, may be difficult to sustain due to a shortage of qualified developers, engineers, and project managers.

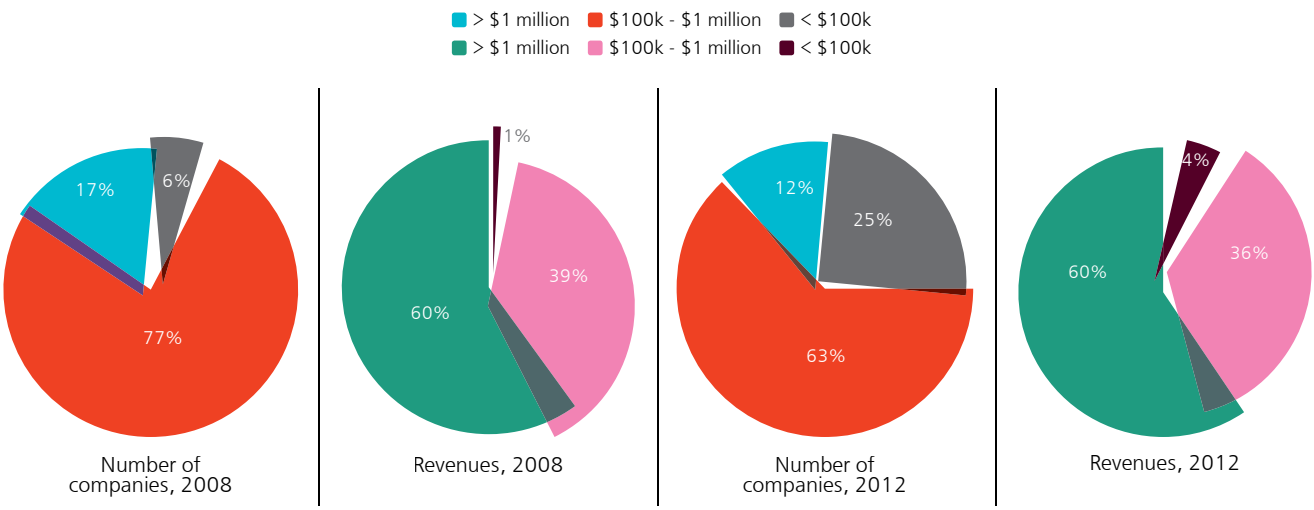
Importantly, 8 startups were recorded in 2012, of which 6 were local businesses. These 8 companies operate in the software and services segment.

In 2012, total turnover of the Armenian Software and Services sector amounted to around USD 244 million which is equal to 23% annual growth compared to last year.

During 2008-2012, the industry recorded an average annual growth of 22.8%.

The share of local company revenues comprised 39% of the industrys total vs. 42% in 2011. Local firms are now in better shape than five years ago: they have more employees, their technical expertise and knowledge of the market is on the rise, and they implement more complex and value added projects.

INDUSTRY REVENUE CONCENTRATIONS



As the above chart shows, the 39 largest companies (with turnover of USD 1 million and over) comprising only 12% of all firms in the Software and Services segment generated 60% of all industry revenues.

As opposed to 2008, the share of large companies in the total industry revenues reduced due to an increased number of small companies. The number of small firms with less than USD 100,000 in revenues increased by 19% during the last 5 years, and their share in the total industry revenues grew by 3%. Though those small firms do not have any visible impact on the industry, their increased number evidences the gradual development of the local market. For the majority of ICT companies, the average annual revenues are between USD 100,000 and USD 1 million.

1.6.2 MAIN SPECIALIZATIONS

The number of companies currently active in the Armenian Software and Services sector is 327. More than half of these companies specialize in software development. Classification of these companies by specializations according to NACE rev 2 is shown below:

CLASSIFICATION CODE	SPECIALIZATION	NUMBER OF COMPANIES, %[2]
58.21	Publishing of computer games	8%
58.29	Other software publishing	9%
62.01	Computer programming activities	64%
62.02	Computer consultancy activities	23%
62.03	Computer facilities management activities	24%
62.09	Other information technology and computer service activities	13%

2 The sum of percentages exceeds 100%, as there are companies specialized in more than one sphere.

With regard to the industry revenue contributions by IT company specializations, the businesses with the highest earning capacity mainly included the customized software and outsourcing segment, chip design and IT services, and consulting. It is important to note that though only 5% of IT companies were specialized in chip design (62.01); their revenues comprised about 20% of the total Software and Services segment turnover.

CLASSIFICATION CODE	SPECIALIZATION	COMPANIES REVENUES, MILLION USD
58.21	Publishing of computer games	7.1
58.29	Other software publishing	15.7
62.01	Computer programming activities	138.2
62.02	Computer consultancy activities	29.8
62.03	Computer facilities management activities	27.7
62.09	Other information technology and computer service activities	25.7

1.7 TELECOM-MUNICATIONS

1.7.1 INDUSTRY BACKGROUND AND MAIN ECONOMIC INDICATORS

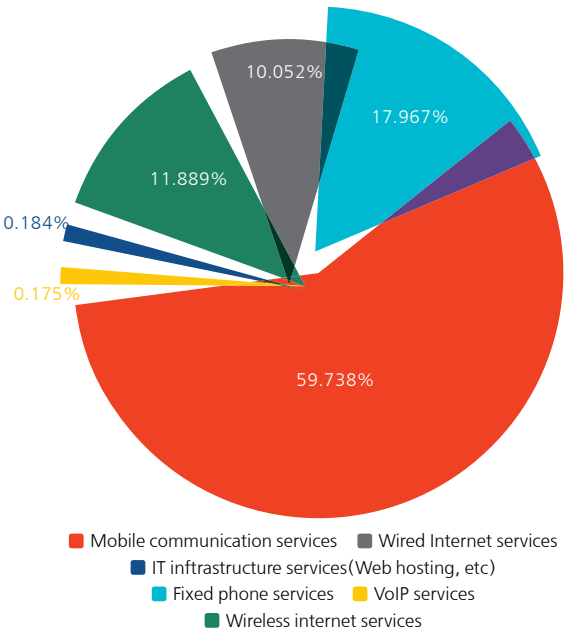
The Armenian Telecommunications sector is represented by 33 companies that are classified as companies providing wired telecommunications activities (61.10), wireless telecommunications activities (61.20), other telecommunications activities (61.90) and companies working on web portals (63.12). The main services offered by these companies include mobile and fixed telephony, cable and wireless Internet, the provision of IT infrastructure (e.g. web hosting), and VoIP services. Its important to note that telecommunication companies provide their services to the local market rather than for export.

As the chart shows, revenues generated from mobile communications constitute the largest part of total revenues in Armenias telecommunications sector. There are three mobile operators in Armenia: Beeline/Armentel, owned by Vimpelcom, one of largest mobile operators in Russia (NYSE:VIP), Vivacell-MTS, owned by Mobile TeleSystems, another of the largest mobile operators that is active in Russia and CIS markets (NYSE:MBT), and Orange Armenia, owned by France Telecom, a leading multinational telecommunications corporation.

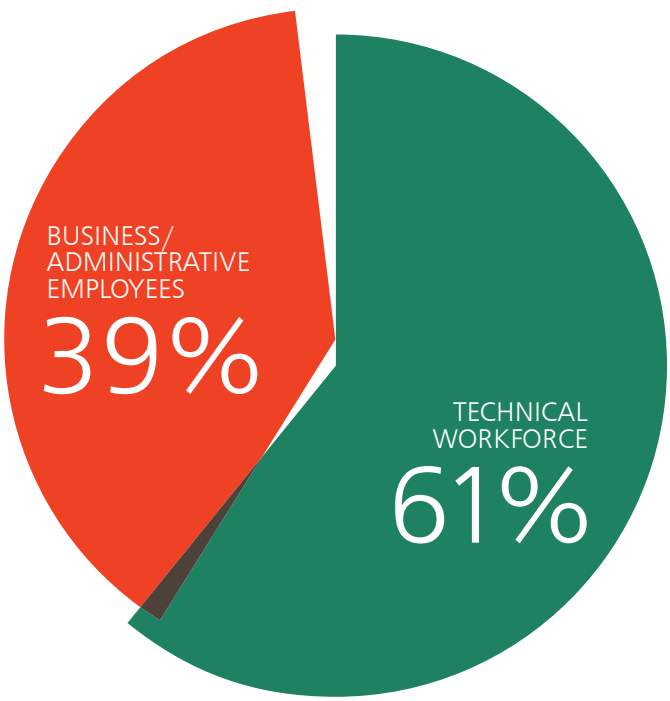
Approximately 83% of total revenue of the Internet Services segment is produced by five large ISPs, one of which is an Armenian provider and the other four are foreign owned companies.

In 2012, the revenue received from Internet Services (cable, wireless and VoIP) amounted to USD 76.6 million, 82% of which went to foreign companies. Internet Services revenue grew by 23% compared to the last year. According to the data, 15% of telecommunication companies import equipment from European countries, 76% from China and 9% from other countries. Technical workforce employed by the telecommunications sector is 2,189.

DISTRIBUTION OF TELECOMMUNICATIONS SECTOR REVENUES

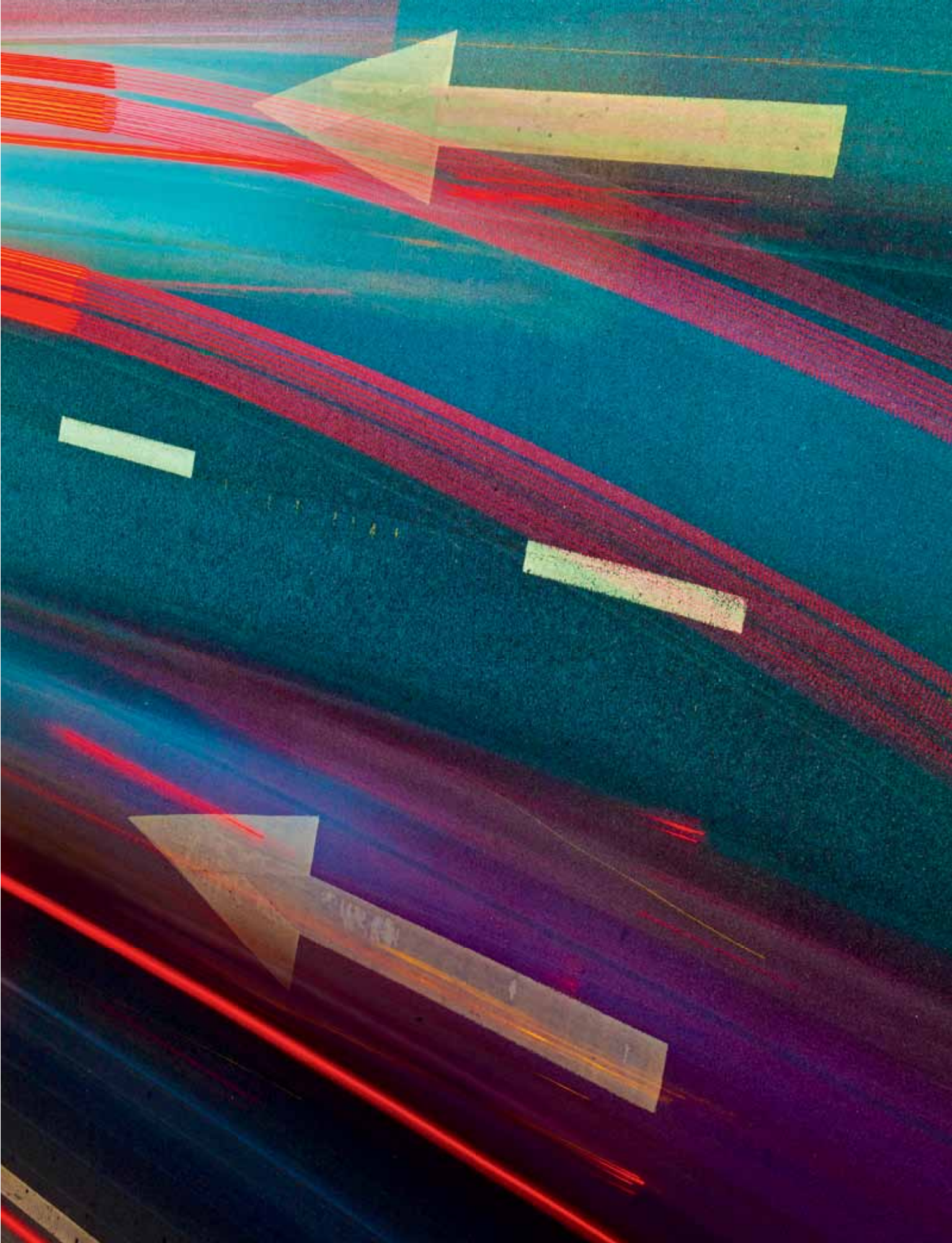


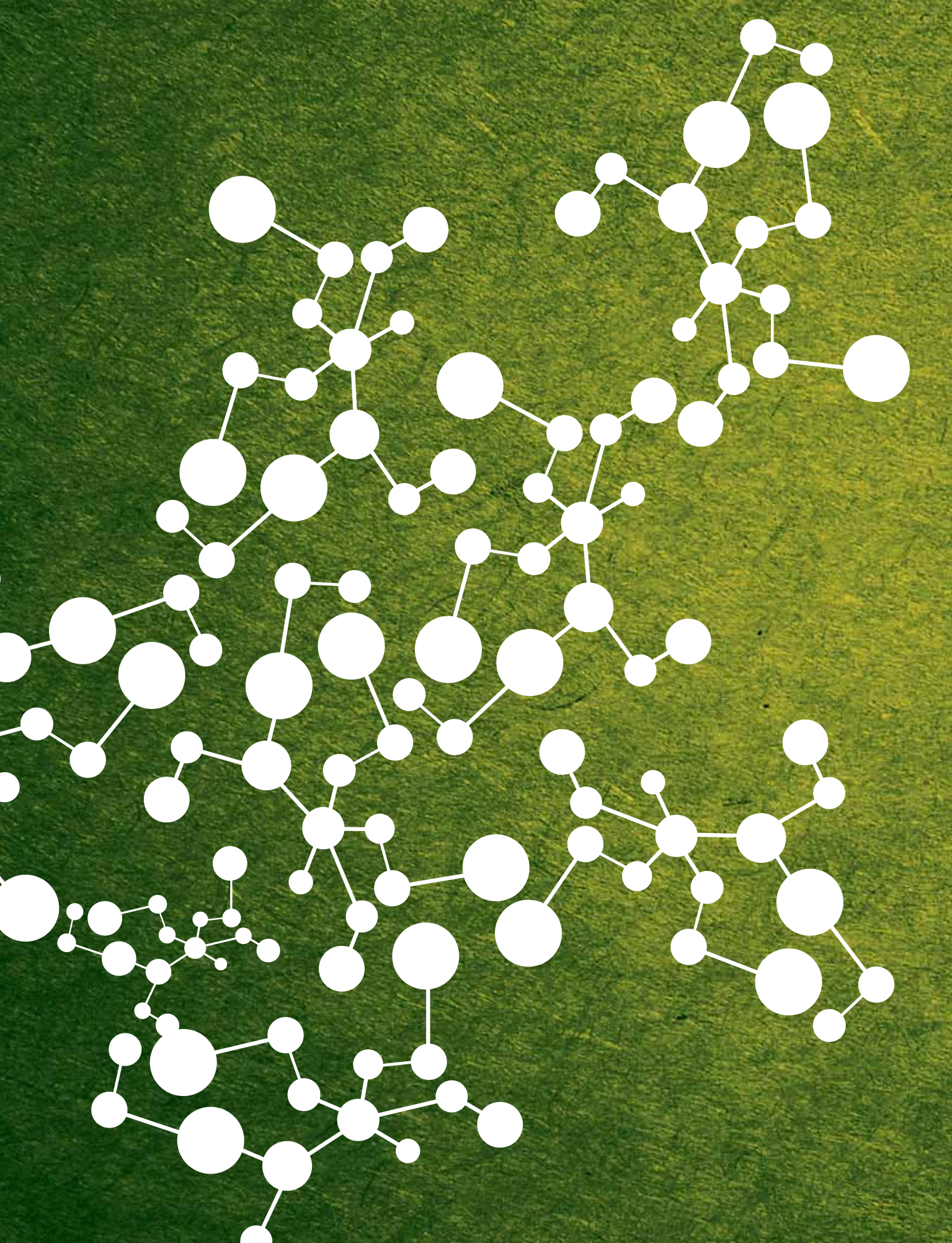
LABOR DISTRIBUTION IN TELECOMMUNICATIONS INDUSTRY



1.7.2 INTERNET COVERAGE

About 46% of Internet service providers are foreign owned companies. The types of Internet access offered in the domestic market by Armenian ISPs are ADSL, fiber-optic and cable access, WiFi and WiMax wireless technologies, general packet radio services (GPRS), EDGE, CDMA and 3G technologies (UMTS/WCDMA). At present, the number of ADSL subscribers in Armenia is 130,000. Tariff plans offer various internet speeds including 512Kbps, 1Mbps, 2Mbps and 3Mbps. These services are offered throughout most of the country, except for 150 villages where phone lines are not currently available. The number of fiber-optic network (FTTB) subscribers is 20,000. Such services are accessible to limited geographic locations: mainly in the cities Yerevan and Abovyan. Tariff plans include Internet speed of 8Mbps. The number of subscribers for wireless technologies (3G technologies, WiMax4, WiFi) is 130,000. Data transfer and Internet connection via wireless network is organized through GSM/EDGE (900MHz and 1800MHz), UMTS 2100 and UMTS 900 technologies.There are no clear market leaders in the corporate market compared with the mass consumer market. Offers for such services vary from AMD 10,000 to AMD 25,000 (from $25 to $65) per month depending on the quality of services.





CHAPTER 2.

ICT COMPANIES DEVELOPMENT PERSPECTIVES AND OBSTACLES

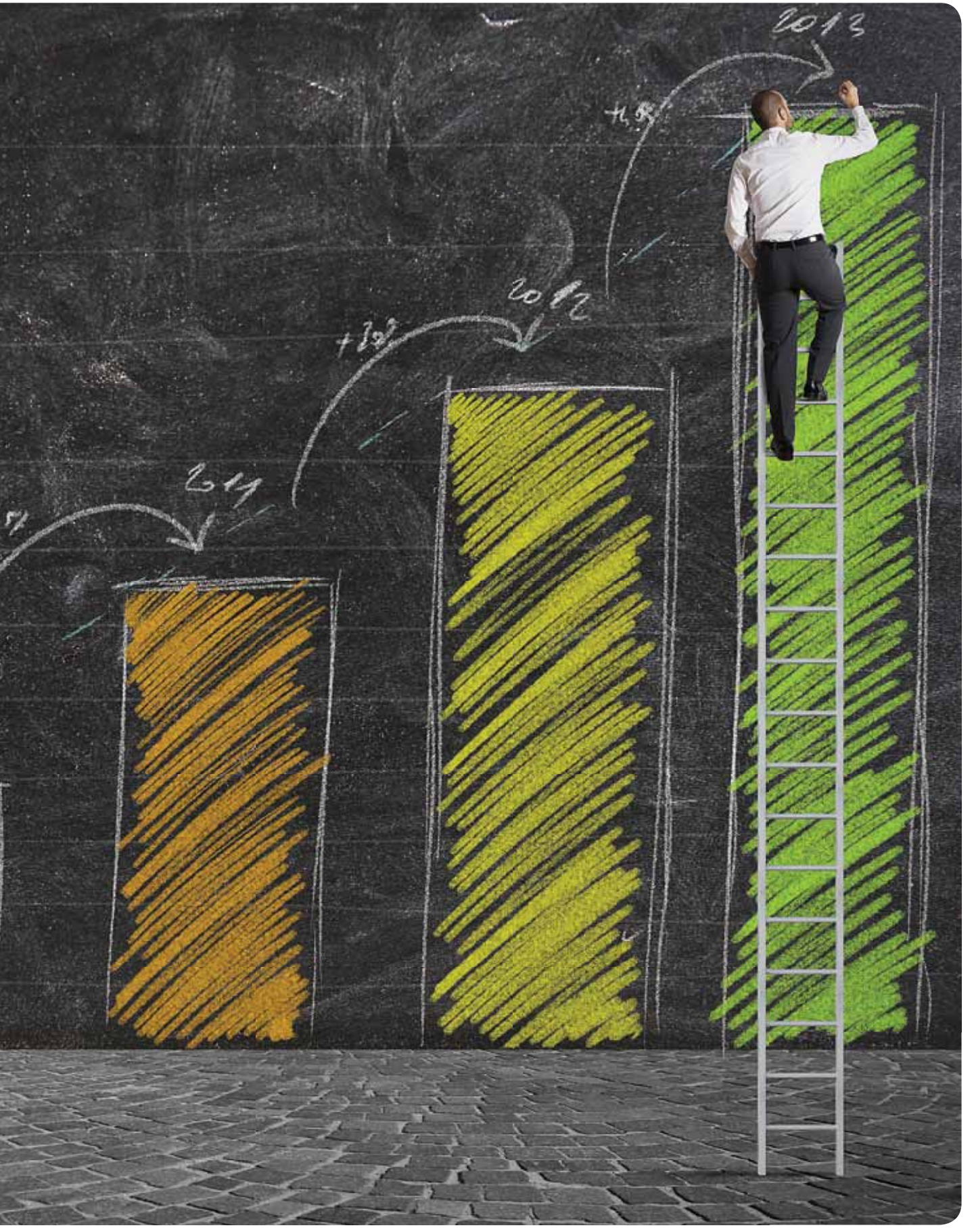
ICT COMPANIES' DEVELOPMENT PERSPECTIVES AND OBSTACLES

Companies cite weak access to financial resources as the main factor that hampers growth in the Armenian Software and Services segment, with about 50% of companies included in the sample having indicated this to be the main barrier. It should be noted that the annual turnover of 80% of those companies is less than USD 100,000.

About 45% of local companies interviewed have problems with entering international markets. As reported by respondents, local companies face this problem due to the fact that many international partners are not aware of Armenia or simply do not put trust in low or middle income country representatives. Management in 40% of the companies, with both local and foreign ownership, stated that the lack of a qualified technical workforce and brain drain are barriers for growth. This problem is also very relevant for both large enterprises (47% of companies with annual turnover of USD 700,000 and more) and smaller sized companies (64% of companies with annual turnover of up to USD 100,000), proving the fact that there is a growing demand for a highly skilled and trained technical workforce resulting in increased salaries for technical professionals.

As per responses of the companies included in the sample, tax and customs procedures are also obstacles hindering the development of 28% and 39% of companies respectively. According to respondents, VAT and profit tax rates take-up a considerable level of their revenues. Furthermore, custom rates are defined by local authorities and are not always reliable.

The regulation of a competitive environment is a growth-hindering factor for only 2% of Armenian ICT companies, which reinforces the fact that there is almost no monopoly in the Armenian ICT sector.


2013
2012
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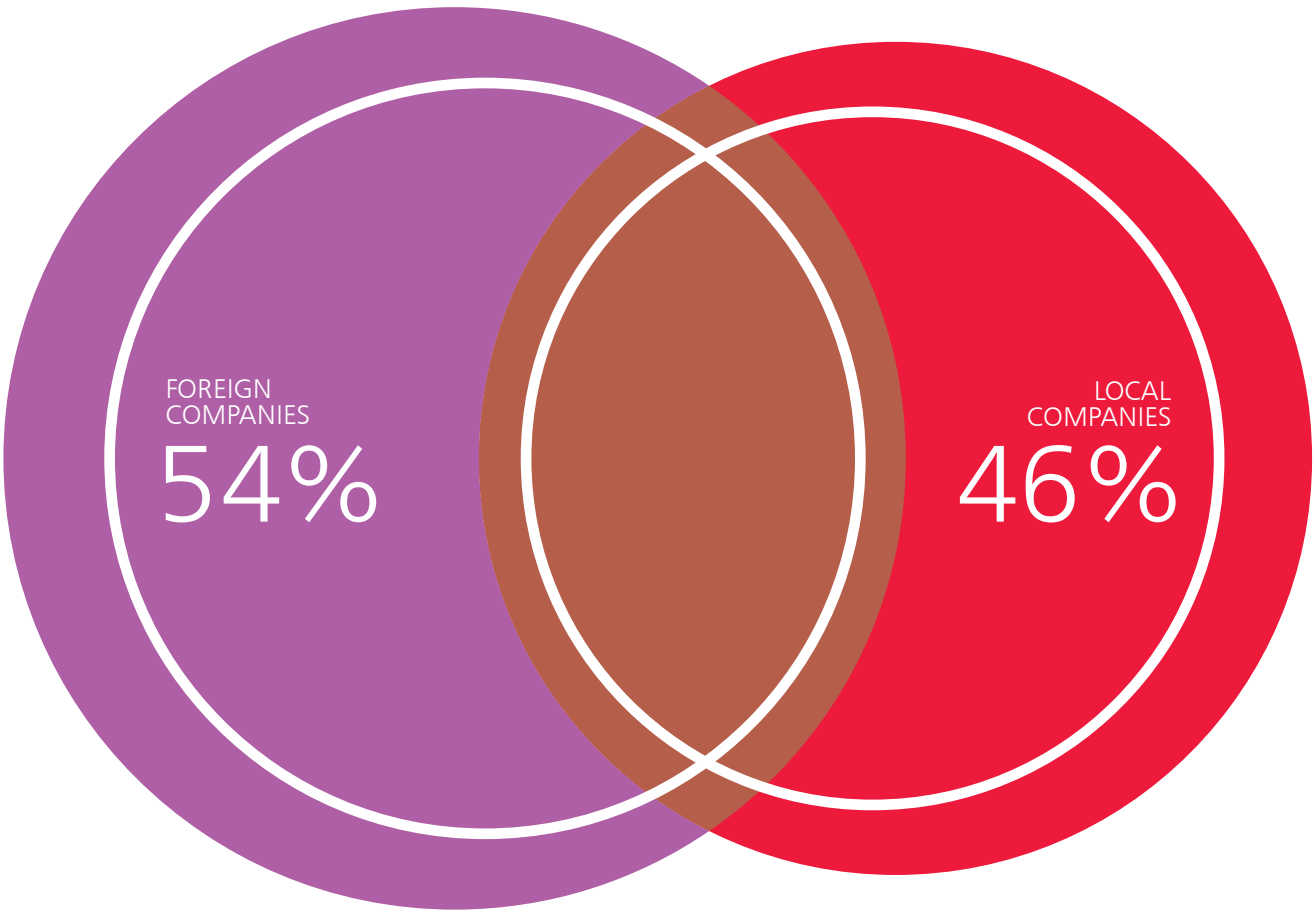
CHAPTER 3.

RESEARCH AND DEVELOPMENT IN ARMENIAN ICT COMPANIES

DISTRIBUTION OF COMPANIES IMPLEMENTING R&D



ICT COMPANIES

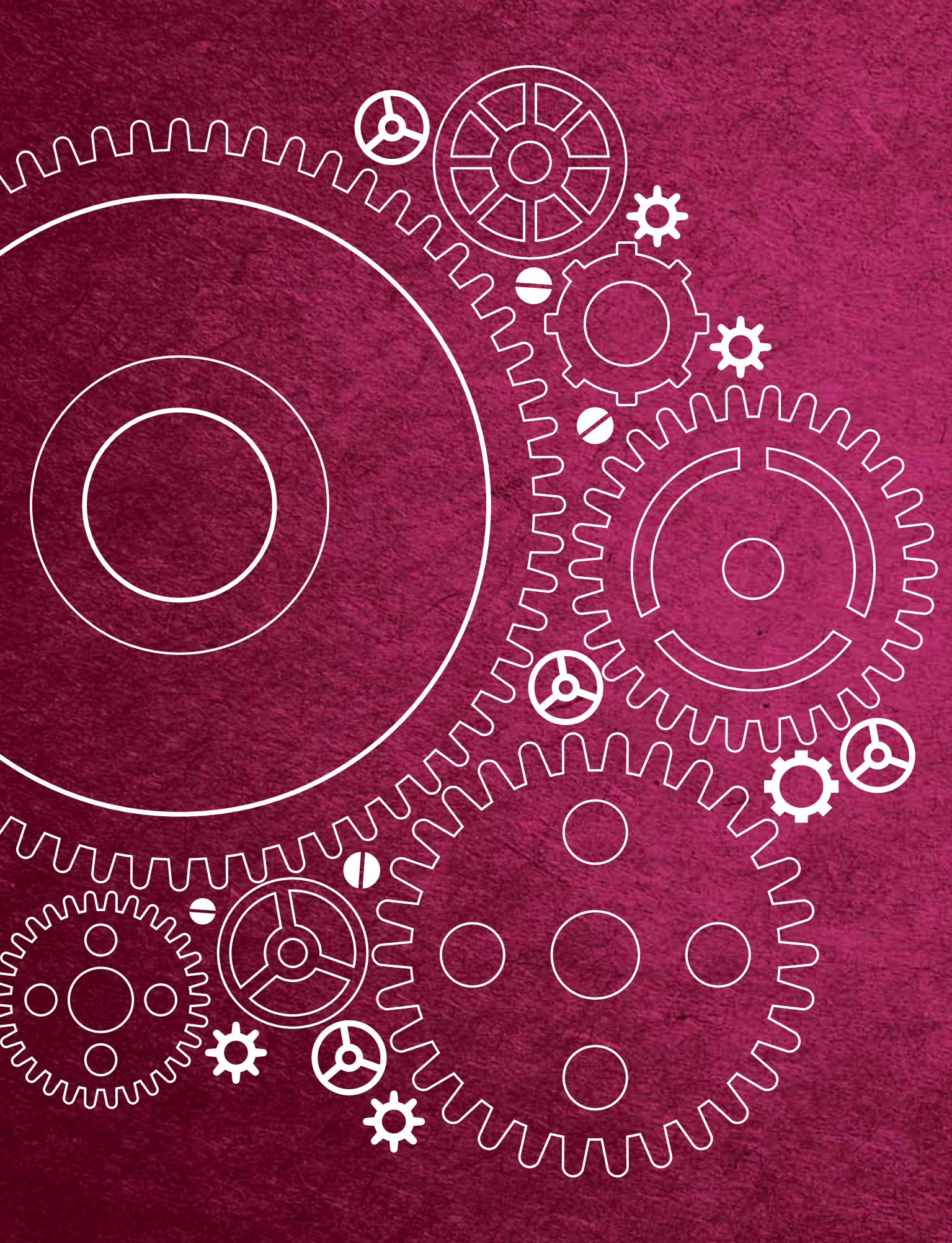
The average revenue generated from products and services developed in-house of companies in the Software and Service segment included in the survey sample is 41% of total revenue generated, while costs for R&D activities amounted to 23%. Revenue produced from the innovation activities of large companies is mainly correlated with the number of company employees: the larger the company the higher the amount invested in R&D.

Nevertheless, for 80% of those companies established after 2008 and included in our sample, share of R&D in total revenues exceeds 46%, furthermore, 68% of their revenues is generated from export of products and services.

Distribution of R&D companies by local and foreign ownership is shown above.

Development of in-house products or services is the main activity for 62% of companies established during 2011-2012, which demonstrates the importance of innovation in the Armenian ICT industry.


CELESTRON



CHAPTER 4.

ICT WORKFORCE

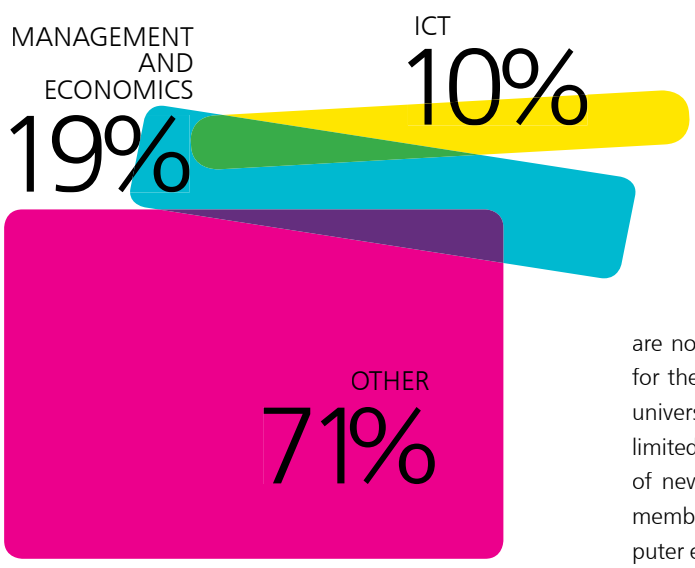
4.1 ICT EDUCATION IN ARMENIA

The Armenian labor market is constantly supplied with skilled workforce in high demand thanks to learning mechanisms that Armenian universities have applied over the decades. Universities put great stress on training students in IT fundamentals and in educating them to understand the entire practical process. Today, training methods applied by these universities are enhanced with new ideas and best traditions and approaches of internationally known institutions of higher education.

INSTITUTIONS OF HIGHER EDUCATION

During the 2011-2012 academic year, there were 9,882 students studying IT and high-tech related specializations, which is 10.4% of the total number of students enrolled in institutions of higher education at that time Armenia.

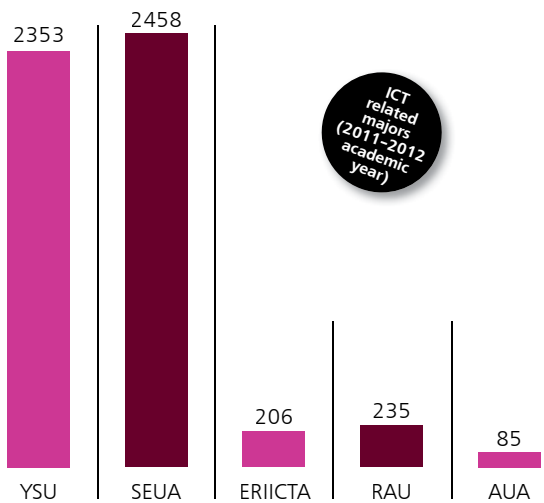
NUMBER OF STUDENTS PER MAJORS IN ARMENIAN UNIVERSITIES



The State Engineering University of Armenia (SEUA) and Yerevan State University (YSU) are the oldest and largest institutions developing engineering professionals for the ICT industry. Other institutions offering IT education include the American University of Armenia (AUA), Russian-Armenian (Slavonic) University, and European Regional Educational Academy (ERA).

Except for a few universities, the current educational system, is inherited from the former Soviet Union. After Armenias independence, however, demand for professionals changed significantly, which resulted in the discontinuation of many fields and specializations as well as the emergence of new ones. A number of universities have already adopted the western style of a two-level educational system with Bachelors and Masters degrees. Many universities offer post-graduate and doctorate education now as well.

STUDENT DISTRIBUTION ACROSS 5 UNIVERSITIES

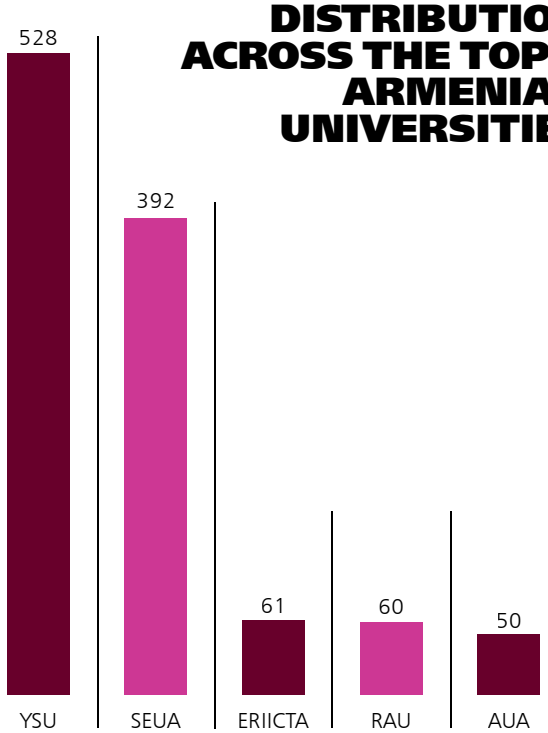


The main issue faced by the educational sector is inadequate funding: Tuition fees and government support are insufficient for the majority of educational institutions, and the private sector involvement in funding educational programs is very limited. Many universities are not able to raise tuition fees because they are already high for the average Armenian student. Other issues faced by many universities are the lack of modern and professional textbooks, limited collaboration links with the private sector, and recruitment of new and younger faculty members to replace aging faculty members. Many universities still face issues with limited computer equipment and Internet access.

FACULTY STAFF AND TEACHING METHODS

Most of the ICT-related faculty staff is concentrated at YSU and SEUA with the remainder spread throughout the other universities. Faculty staff totals 1,091 at the five leading universities.

FACULTY DISTRIBUTION ACROSS THE TOP 5 ARMENIAN UNIVERSITIES



The majority of educational institutions consider their curricula and teaching methods up to date and in line with industry requirements. Many professors develop their class syllabi using examples of leading European, Russian, and US universities. In some cases, local IT professionals are invited to help faculty in aligning the curricula to the latest industry trends and requirements.

Today, many universities that prepare technical specialists offer different business courses including marketing, management, and other subjects. Foreign language instruction (e.g., Russian and English) are also considered extremely important for the development of quality technical and managerial personnel.

COOPERATION WITH PRIVATE BUSINESSES

Some Armenian universities have close cooperation with private businesses. Examples of such cooperation are:

Interdepartmental Chair of Microelectronic Circuits and Systems established by LEDA Systems (acquired in 2004 by Synopsys Inc.) and SEUA. The Chair, now part of the Synopsys University Program, supplies more than 60 quality VLSI and EDA specialists each year. Synopsys expanded this initiative through opening interdepartmental chairs at YSU, RAU and ERA.

Internet and web technologies laboratories established by Lycos Europe, EIF, and Sourcio CJSC at SEUA and YSU in 2005.

SUN educational laboratories formed by Sun Microsystems, EIF, and USAID at SEUA, YSU and RAU in 2008.

Gyumri IT Center, the first IT training center in the city of Gyumri, established by the Fund For Armenian Relief (FAR) and EIF in 2006.

Microsoft Innovation Center formed by Microsoft, EIF and USAID at SEUA.

Armenian-Indian Center for Excellence in ICT, founded in 2011 under the joint project of Governments of Armenia and India.

The Regional Mobile Application Laboratory founded in 2011 for Eastern Europe, South Caucasus and Central Asia under the joint project of InfoDev, Government of Finland and Nokia.

The aforementioned companies hired graduates from these training courses. At this point, industry and university cooperation does not go beyond teaching and training; it mainly concentrates on the preparation of quality professionals for several companies and the industry in general.

STUDENTS

Between 2011-2012, nearly 9,882 students[2] were enrolled in IT related departments within the Armenian universities offering IT related professions, of which about 5,340 studied at the above-mentioned five main universities. Around 50% of all these students study at SEUA and YSU. Foreign students from CIS, Middle East, Europe, and other countries study in Armenia, and their numbers are growing over time. Over the last 3-6 years the students recorded substantial academic progress, and enrolment in IT-related departments has become rather competitive, specifically at YSU and SEUA. Computer science, information and applied mathematics, information technologies and information system security, automated control systems and microelectronics are the most popular majors for applicants.

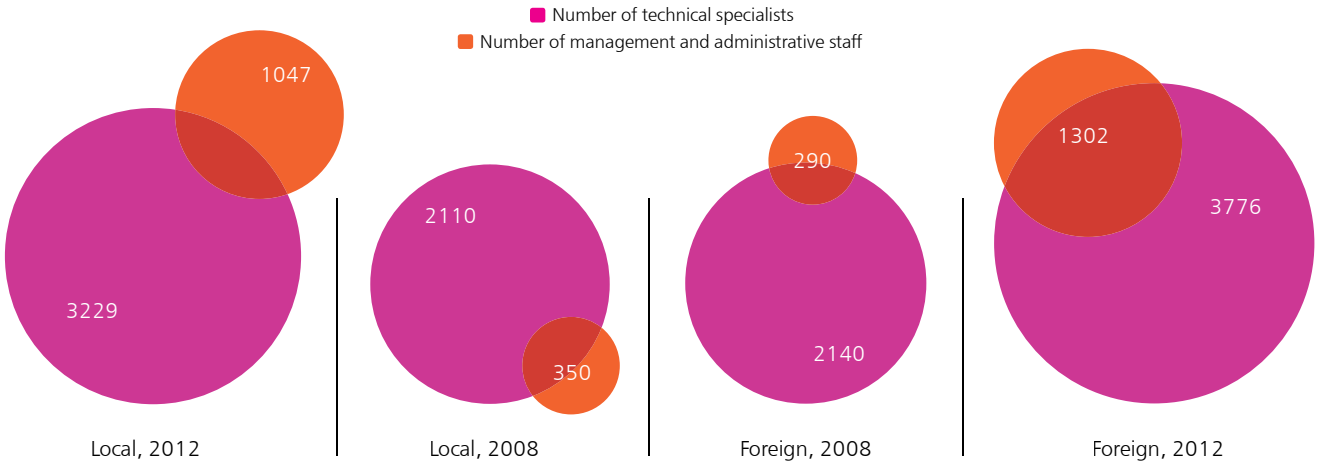
4.2 ICT WORK-FORCE STRUCTURE

It is a fact that workforce is one of the most important competitive advantages of the Armenian ICT sector. Not only is the relatively lower cost a benefit, but also the high productivity of Armenian specialists is attractive to foreign investors. In 2012, number of employees in the IT sector reached 9,354, which accounted for about 10% growth compared to 2011. Also, the number of business administration professionals increased from 23% to 25% as compared to the previous year. The number of technical specialists such as software engineers, analysts, developers, IT project managers and others reached 7,005 individuals. Approximately 69% work for the Software and Services segment, while the remaining 31% of technical professionals are employed by the telecommunication segment.

INDUSTRY SEGMENTS PRODUCTIVITY

[2]Source: National Statistical Service of the Republic of Armenia, http://www.armstat.am

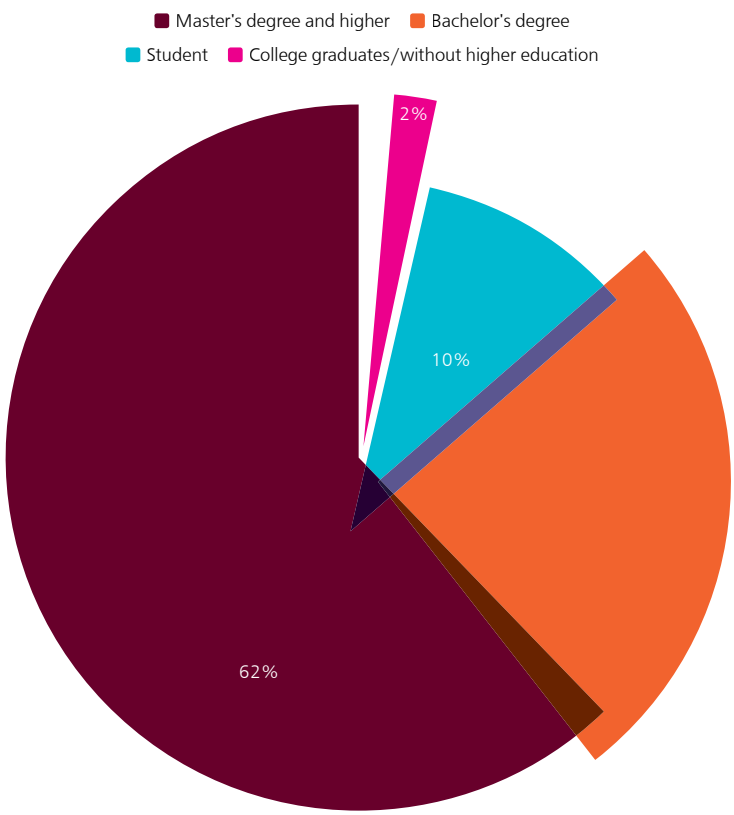
WORKFORCE DISTRIBUTION



As the above chart shows, in 2012 the number of management and business professionals in both domestic and foreign companies increased as part of the total IT workforce when compared to 2008.

According to 2012 data, 62% of Armenias ICT workforce has at least a Masters degree. Students represent 9.6% of the whole ICT workforce. Though local companies prioritize personnel training as an essential factor of their development, few of them are in the position to provide ongoing training because of the limited resources and personnel to help with the training process. Many companies offer non-paid internships when selecting fresh graduates. Companies host interns and train them to handle smaller value added jobs and then select the best for permanent positions. New employees usually start working at full capacity after having spent at least two months training in the new position.

ICT WORKFORCE EDUCATIONAL BACKGROUND



The majority of Armenia's ICT specialists are males. Females comprise only 39% of business and administrative professionals and 33% of technical professionals. Females occupy only 1.3% of directorship positions in Armenian ICT companies.

The average work experience of company directors included in our survey sample is 21 years. Information on average years of work experience of other employees is shown below:

AVERAGE EXPERIENCE IN ARMENIAN ICT COMPANIES BY YEARS

Local and foreign companies employed 37.5% and 62.5% of the total workforce, respectively, compared to a 50/50 ratio in 2008.Companies with foreign ownership employed an average of 34 people, while the average number of employees in local companies is 22.

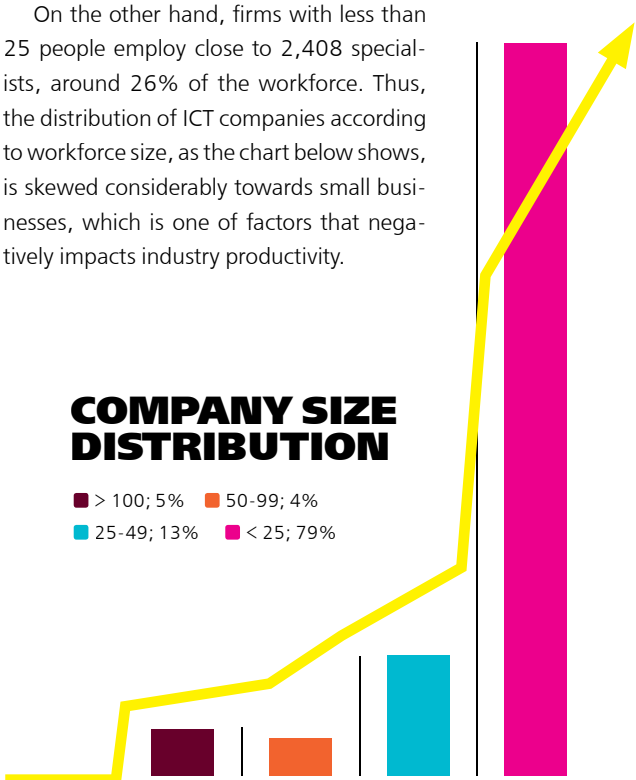
Armenia is still considered a low cost offshore development location, where salaries are competitive with those of many IT outsourcing countries such as India, Russia, Israel, Ireland, and China.

At local companies the average monthly salary of a junior technical specialist is USD 300 while the salary of senior specialists reaches about USD 3,000. In foreign branches, technical specialists salaries range from USD 370 to USD 3,500 per month.

The results of this study show that the rate of wage of technical employees correlates with the years of work experience rather than educational achievements. For example, a technical employee holding a bachelors degree and having 5 years of experience is paid a higher salary than an employee with a Masters degree or above having three years of experience.

In 2012, the distribution of companies by staff size is close to the previous years rates. As in 2011, the number of specialists employed by the firms varies significantly within the industry. Only 5% of all businesses employ 100 or more specialists, while 77% have less than 25 employees. The top 5% largest companies employed nearly 3,954 people, constituting around 42.3% of the total workforce. Compared to last year, the number of employees in firms with less than 25 people increased due to new companies established in 2011-2012.

On the other hand, firms with less than 25 people employ close to 2,408 specialists, around 26% of the workforce. Thus, the distribution of ICT companies according to workforce size, as the chart below shows, is skewed considerably towards small businesses, which is one of factors that negatively impacts industry productivity.



Foreign branches, as part of their strategic management, constantly train their employees both in Armenia and at their head offices. Furthermore, branches have created special resource centers and libraries to provide opportunities for the staff to improve their qualifications and skills. Employees of certain foreign branches are offered employee stock options and other non-salary incentives. Similar initiatives have also been offered by local companies in the last three years.

CHAPTER 5.

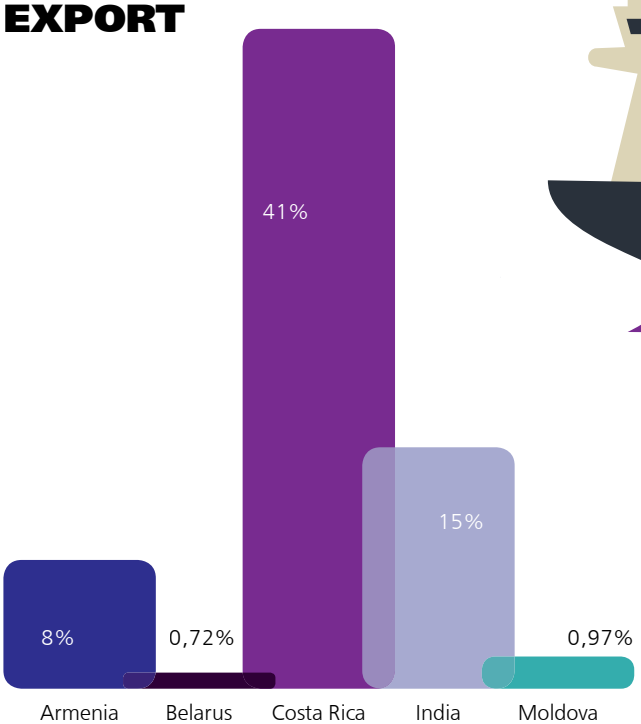
THE ROLE OF ICT SECTOR IN THE ECONOMY OF ARMENIA

5.1 DEVELOPMENT PROGRESS AND PROSPECTS

The share of Armenias ICT software and services sector revenues was 3.3% of Armenias GDP in 2012 ($9.8 billion[3]). In 2012 the total revenue of the ICT sector accounted for 9% of the total turnover of Armenias trade and services[4].

Between 2008 and 2012, the industry recorded a 22.8% average annual growth. The industrys contribution to total exports rose from 7% in 2008 to 8% in 2012[5], proving the growing importance of the software services sector to the Armenian economy with a focus on the expansion and development of export-oriented businesses.

SHARE OF IT SERVICES EXPORT IN TOTAL EXPORT



The above chart shows the share of exports[6] of IT services to total exports. Armenia ranks at the top of CIS countries ahead of Russia, Moldova, Ukraine, and Belarus. The ICT sector creates 900 well-paid jobs for technical specialists annually. On the other hand, Armenian universities prepare 1,700 IT and high-tech specialists each year, the best of which are then trained in companies and hired for these jobs.

39% of the total revenues of the software and services segment went to local companies, 3% less than that recorded in the previous year.

Apart from local ICT companies, foreign branches and offices are present in Armenia as well. They are primarily outsourcing centers with a specific budget, thus little value generated by these foreign branches remains in the country (only salaries and other expenses). Nevertheless, this branch model is still relevant for Armenia and has a visibly positive effect on the industry and the overall economy of the country.

[3]Source: National Statistical Service of the Republic of Armenia, http://www.armstat.am, [4]Source: National Statistical Service of the Republic of Armenia, http://www.armstat.am, [5]According to 2011 export rates (Source: Central Bank of Armenia), [6]Source: WorldBank publications

5.2. DOMESTIC MARKET

In 2012, the volume of the domestic market reached about USD 201.3 million, accounting for 63% of the industrys total, exceeding the 2011 domestic market share by 7%. Since 2008, the sales in the domestic market have increased by more than 175%, which has been the result of a substantial growth in the internet services area. Software constituted 62% of the domestic market, while the ISP segment was 38% with an estimated USD 76.6 million in total market revenues. The share of foreign-owned ISPs and the overall ISP market increased considerably due to the demonopolization of the telecommunications industry, the formation of new large ISP firms, and acquisitions of telecom players. In 2012, the domestic market turnover was larger than that of the exports compared to the previous year.

The picture was opposite with the software and IT consulting segment, where exports are almost equal to the turnover in the domestic market. Exports accounted for 49% of the total turnover; 51% were revenues generated by the domestic market. While there is a growing demand for services in the domestic market, this is a slow process due to a number of factors including margin domestic market, low wages, low demand for productivity enhancement tools, financial constraints, high software piracy rates, and other factors.

Because of the relatively low domestic demand, there was less incentive for Armenian ICT companies to develop software packages or offer new and quality services. The majority of software packages sold in the domestic market included accounting and financial software for large enterprises and banks. Other highly demanded products and services included enterprise resource planning solutions, e-commerce tools, web development services, tools for health care industry, and distance learning programs.

DOMESTIC MARKET REVENUES: SEGMENTATION

5.3. EXPORTS

In 2012 exports have risen by USD 29 million and made up 49% of total revenues of the Software and Services segment (without ISPs) or USD 119.6 million.

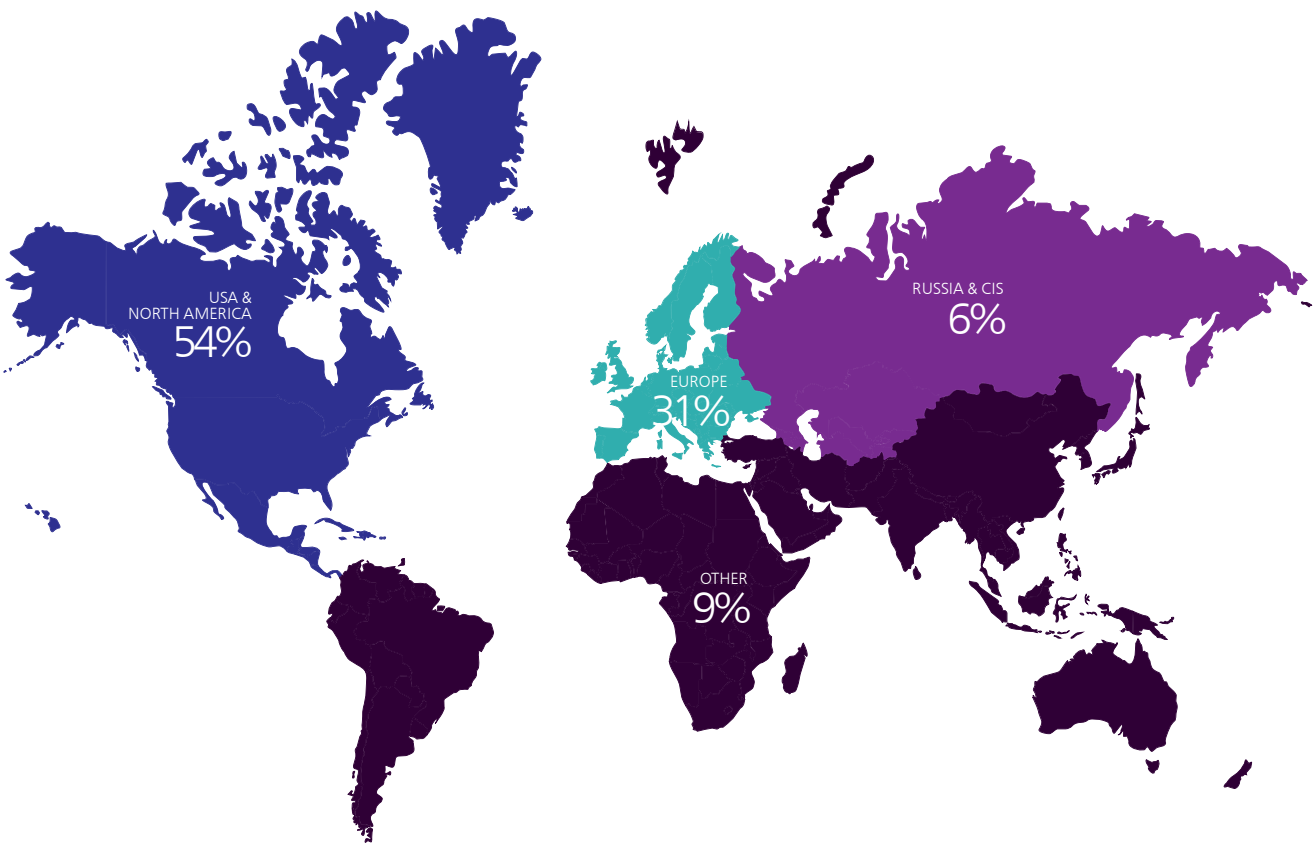
Foreign companies were still prevalent in exports with an 83% share. The largest companies of the Software and Services segment are branches of foreign firms, which almost completely export their output. In addition, many locally owned enterprises also export a significant portion of their products and services.

Armenias IT industry exports nearly USD 119.6 million of products and services to many countries worldwide. About 50% of IT companies export their own products and services, though the export volumes vary. In certain companies, exports account for a low share in revenues, while others export their products in whole (100%).

The largest share of exports, almost 54%, goes to the United States and Canada, the second largest is Europe with 31%, and the third is Russia and CIS countries with 6%. The share of services exported to North America decreased 4% while the volume of services exported to Europe increased from 26% in 2011 to 31% in 2012. Among other countries, India has the highest demand for Armenias services, focusing mostly on outsourcing of customized software development.

In general terms, the main factors hindering the growth of exports include insufficient knowledge about Armenia and its IT industry by the international business community, along with its remoteness from major IT markets and the language barrier, though these two are less important.

EXPORT DESTINATIONS, 2012



5.4 FOREIGN OWNED COMPANIES

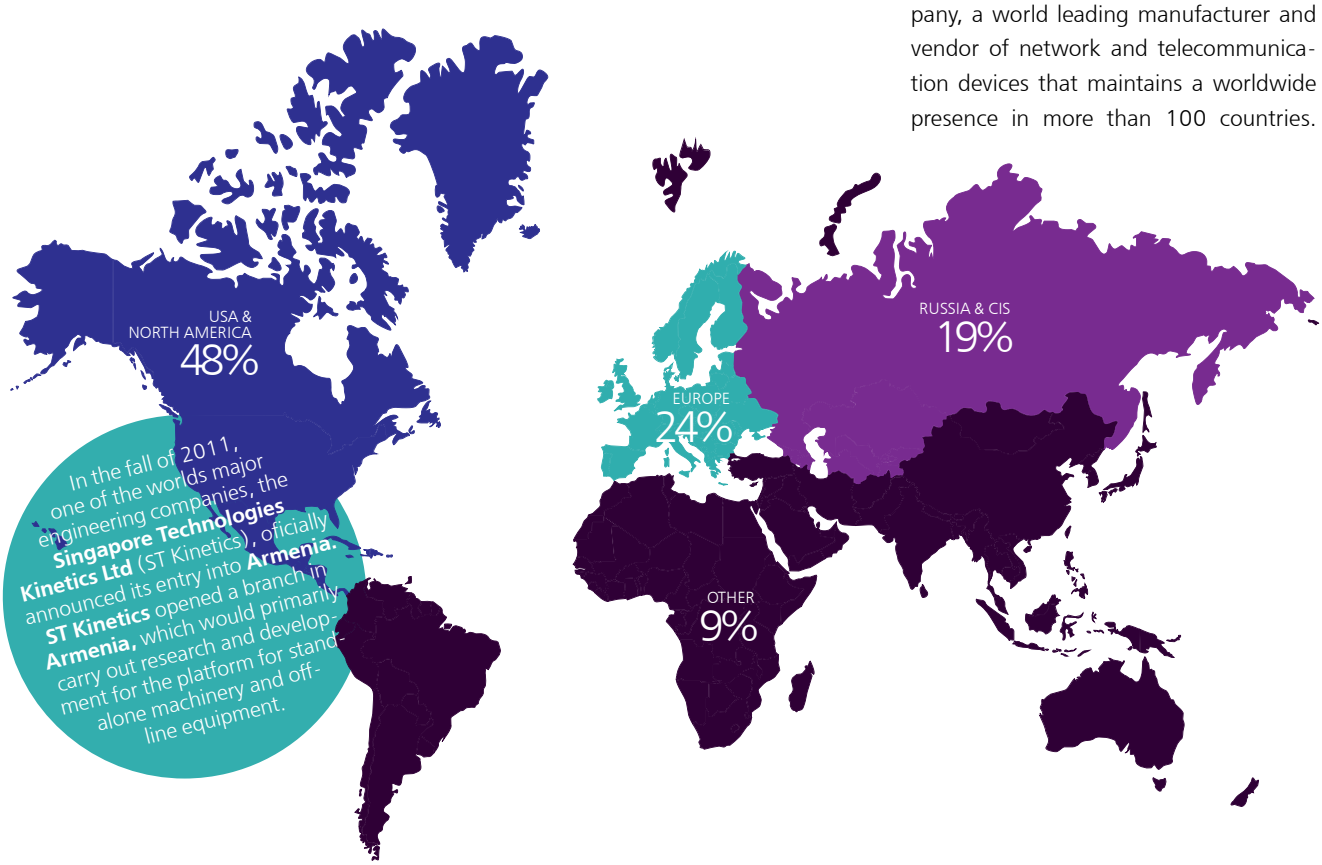
According to 2012 data, 151 foreign ICT companies operate in Armenia, constituting 42% of the industry total. In 2003, these companies represented only 22% of Armenian ICT companies. Armenias expertise in software development continues to win growing recognition overseas, thus fostering foreign investments in the ICT sector. Similar to recent years, US companies made up the majority of foreign companies (48%). The number of European-owned companies grew by 10% since 2008.

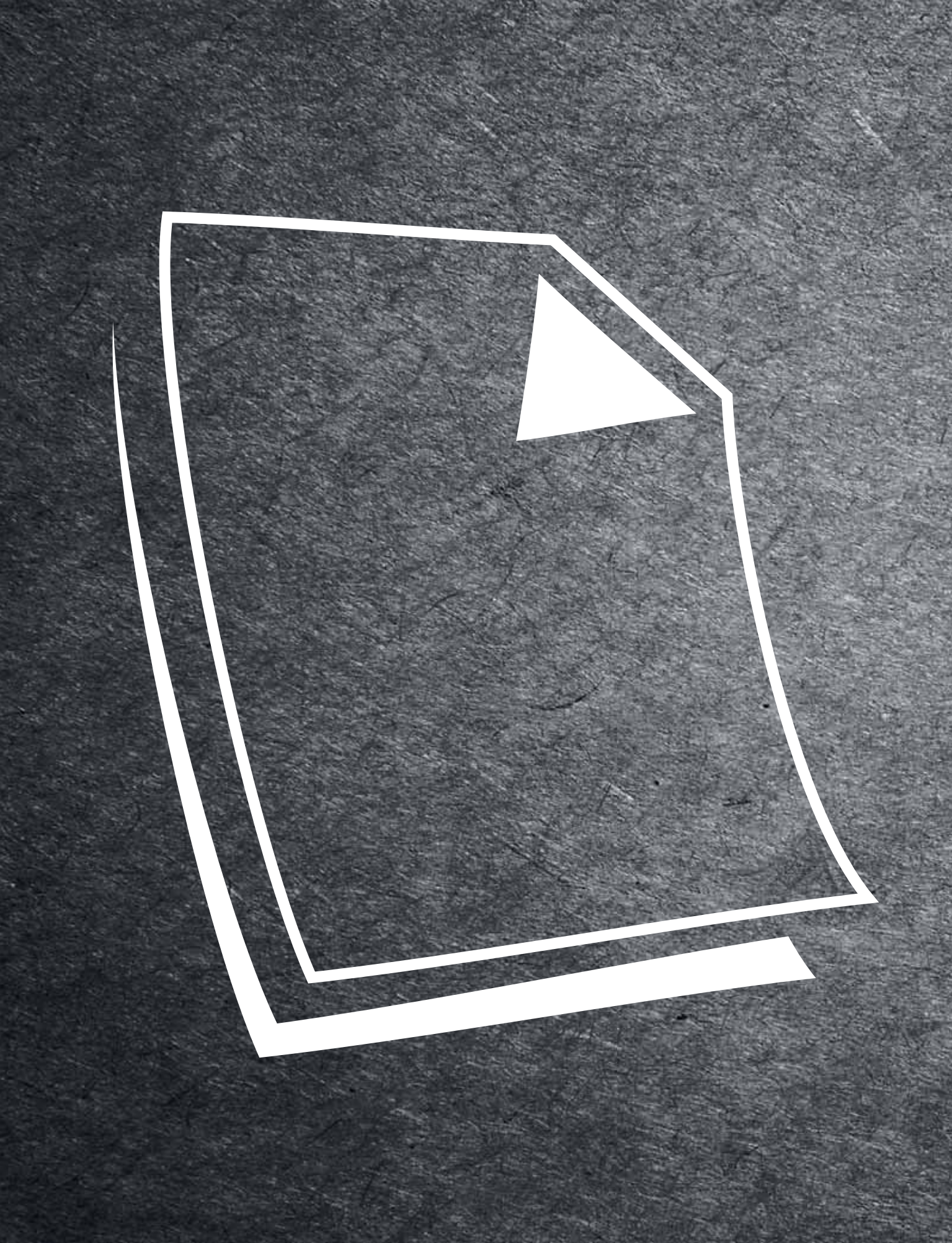
In the majority of cases, foreign branches are pure development centers for their parent companies. Foreign companies usually set-up small development centers and, when there is an effectively operating team in place, start increasing the number of employees and moving higher value added activities to Armenia. It is quite common for the entire cycle of a company's technical activities, including R&D, design, coding, testing, and other functions, is eventually moved to Armenia. In addition, some companies have also started relocating parts of their business-related functions, such as marketing and customer support, to Armenia. The practice of sending local professionals to customer sites outside of Armenia to provide implementation and customer support is widely used. In 2004, 2005, and 2010, the Armenian ICT sector witnessed major M&As within the chip design segment. Synopsys Inc., a leader in delivering solutions for semiconductor design and manufacturing, acquired LEDA Design, Monterey Arset, HPL Technologies, and Virage Logic. The newly combined development center in Armenia owned by Synopsys is currently the largest domestic software powerhouse with more than 500 employees.

Other acquisitions of existing Armenian companies over the last several years include three state owned Armenian enterprises (MARS, YCRDI, and Yer.ACSSRI) sold to Russian investors by the Government of Armenia; an Armenian branch of a US company, Brience, which was acquired by Germany-based Lycos Europe; and the acquisition of Ponte Solutions, a US company with an R&D center in Armenia, by US-based Mentor Graphics Corporation.

In the summer of 2011, the regional software development laboratory of D-Link International was launched in Gyumri, which became an important component of the Gyumri Technopark. D-Link International is a Taiwanese company, a world leading manufacturer and vendor of network and telecommunication devices that maintains a worldwide presence in more than 100 countries.

OWNERSHIP DISTRIBUTION, 2012





CHAPTER 6.

POLICY DEVELOMENTS

POLICY DEVELOPMENTS

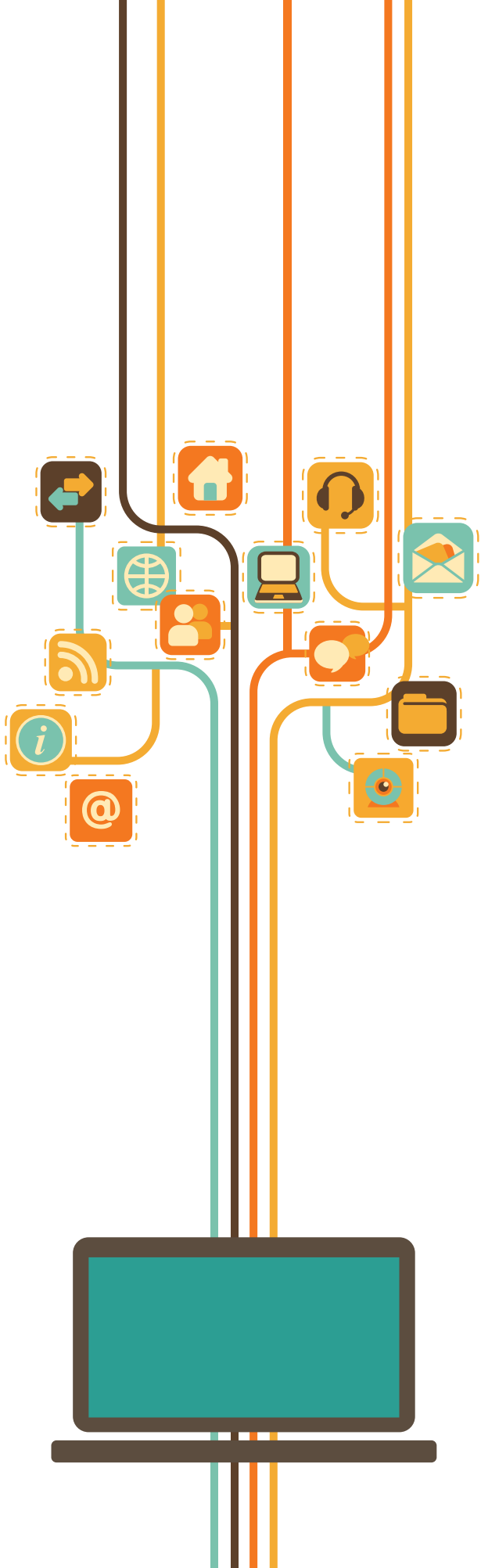
In 2000, the Government of Armenia declared the IT sector as one of the priorities for the development of the Armenian economy, which was followed by a number of specific actions to bring the Government decree into effect. In 2001, the Government, jointly with the World Bank, USAID, various foundations, universities, and private enterprises, developed the ICT Master Strategy and ICT development implementation plan to promote ICT and establish Armenia as a regional ICT hub. In May 2001, the Government approved the ICT Development Concept Paper and Action Plan prepared by the Ministry of Trade and Economic Development in accordance with the recommendations outlined in the ICT Master Strategy.

In July 2001, Information Technologies Development Support Council of Armenia (ITDSC), chaired by the Prime Minister, was established by the decree of the President of Armenia. The mission of the Council is to act as a bridge between the Government and the private sector and to serve as a connecting link between the Diaspora and Armenia. The goals of the Council are to assist the Government and the private sector in building a strong and viable IT industry and developing Armenia into an advanced information society.

In 2002, Enterprise Incubator Foundation was established by the Government of Armenia and the World Bank to support the development of information technology industry in Armenia. EIF is the largest development initiative within the IT industry in Armenia.

Information technology is considered by the Government as an important area for international cooperation. Various projects have been initiated in this area: the European Regional Institute of Information and Communication Technologies in Armenia (ERI-ICTA), which was established with the financial assistance from the European Union; the USAID funded Competitive Armenian Private Sector Program (CAPS); the USAID funded Enterprise Development and Market Competitiveness (EDMC) Project, and other programs.

In 2008, the Government adopted a new 10-year industry development strategy focused on building infrastructure, improving the quality of IT graduates, and creating venture capital and other



financing mechanisms for start-up companies. The main goals of this new strategy are: build a developed information society in Armenia, make Armenia part of the knowledge creation global network, and form a strong and advanced information technology sector. The strategy aims at increasing the rates of computer and internet penetration in all segments of the economy, building new technoparks and incubators, establishing a major venture fund, developing a domestic market for local IT products and services, increasing FDI, and other measures targeting the expansion of the ICT sector, and the development of an IT society in Armenia. The Ministry of Economy is the government body responsible for the implementation of this strategy and overall IT industry development.

Since 2008, allocations have been made from the National Budget to the Ministry of Economy for providing government support to the development of the IT sector. These funds are used for: IT industry research; industry status surveys; the development of guidelines for industry and enterprise rates; the organization of industry related events of local, regional and international importance such as exhibitions, forums, conferences and competitions; participation of Armenia in major international events abroad; and, co-financing joint projects and events with foreign governments, international institutions and multinational organizations in the IT industry.

ArmTech, the Armenian global high-tech congress and DigiTec, the specialized information, telecommunications and high-tech expo, arranged and implemented in close cooperation with the Government of Armenia, are well established.

ArmTech is intended to highlight the fact that growth in the high-tech industry has a strategic importance for the Armenian economy, promote international collaboration, attract investments, foster cooperation between IT specialists, and make the Armenian high-tech industry world-renowned. The annual forum is organized sequentially in Armenia and the USA.

The main goal of the DigiTec expo is to create a favorable communication environment for high-tech companies, business consumers and the general public. The expo serves as a floor for studying and understanding the real picture, identifying the achievements, challenges and opportunities of the Armenian ICT sector, and tends to facilitate the market entry of IT companies, the exhibition of their products and services, and the strengthening of international partnerships.

In recent years, the Government of Armenia has signed a number of cooperation treaties and memoranda of understanding with governments including the Republic of India, Arab Republic of Egypt, and others, as well as with world-recognized companies, such as Microsoft, Alcatel, Hewlett-Packard, Sun Microsystems, National Instruments, Mentor Graphics, Cisco, Intel, Synopsys, D-link, VMware and others.

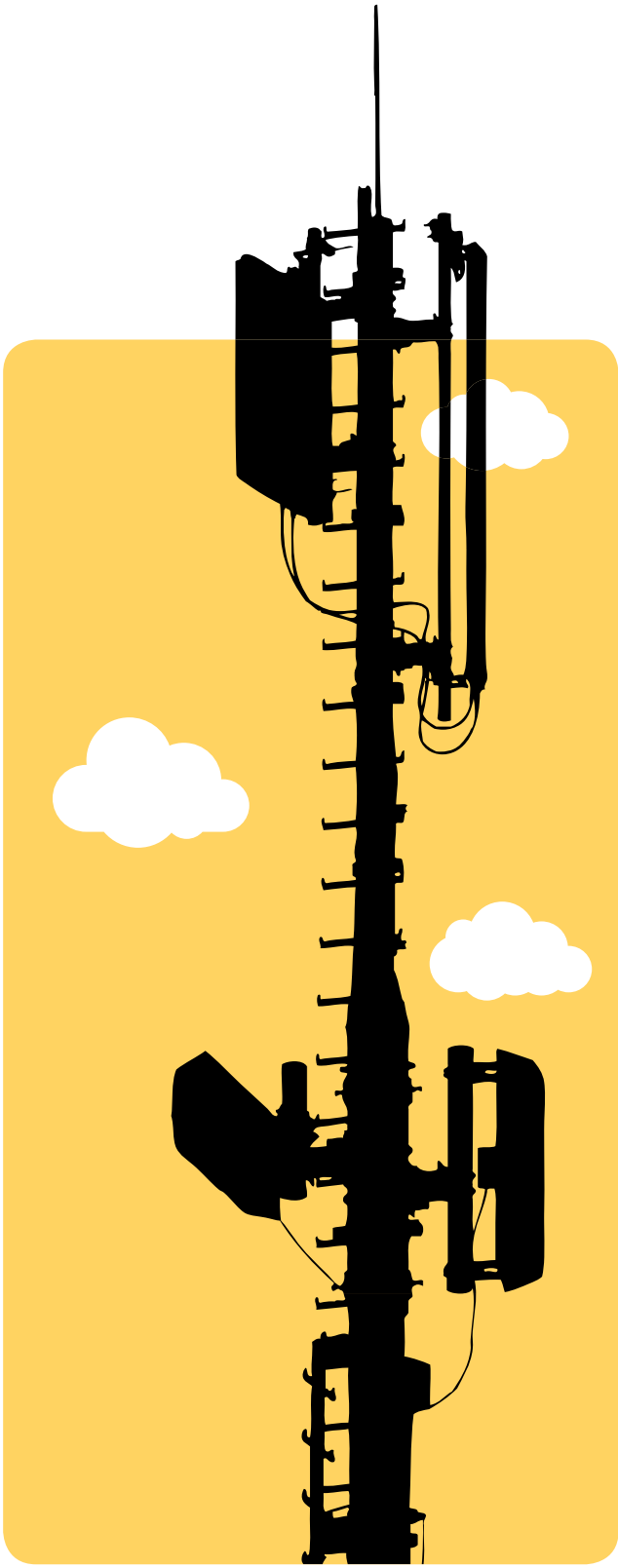
The Government of Armenia implements targeted projects to

develop the IT sector infrastructure. In 2008, the Government of Armenia approved the Concept Paper and the Action Plan for the reconstruction of Gyumri (Shirak marz, Republic of Armenia) into a "Technocity." The program aims at turning Gyumri into a Center of Excellence a "Technocity" reputed as a business environment with large education institutions, research centers, and strong facilities for development, testing, realization of innovative, information and high-tech projects and the launchpad for large-scale production and small and medium high-tech companies. Since 2008, allocations have been made from the National Budget to the Ministry of Economy to provide state support to the activities of the Gyumri Technopark, the development center in the city.

The program is implemented jointly by the Ministry of Economy and EIF, along with international and local ICT companies, banks and other partners.

One of the goals of the new ICT Development Strategy adopted by the Government of Armenia is to form an E-society in Armenia, by significantly expanding computer usage and internet access. To achieve this goal, the Computer for All program has been launched, which intends to:

- Make computers affordable and accessible to the population.
- Train skillful users of the respective computer hardware and software.
- Enhance internet accessibility to and the use of E-services by the population.
- Reduce the propagation of non-licensed software.



In 2010, memoranda of partnership were signed by the Ministry of Economy, Ministry of Education and Science, Intel, Hewlett-Packard, EIF and Unicomp CJSC for the implementation of Teachers PC and Classmate PC pilot projects in Armenia.

Based on the GOAM Decree #7 of February 25, 2010, the Government of Armenia approved the Armenian E-society Development Concept Paper to be implemented over the next few years.

To foster the use of electronic management systems to the fullest extent, the Government of Armenia introduced the www.e-gov.am electronic management portal in 2010 with the intention to unify all electronic management tools and databases of the Armenian government authorities and provide a comfortable environment for their use. The site allows electronic applications for licenses, electronic registration of organizations, electronic tax reports, electronic visa applications, electronic applications to the Intellectual Property Agency, issuance of electronic signatures, and electronic procurements. New services are being continuously added to this electronic management portal; work is currently under way to introduce other electronic services including e-health, e-education, e-pension and e-identification services.

To achieve the aforementioned objectives and implement other industry development programs and projects, the Government of Armenia signed a credit agreement with the International Bank for Reconstruction and Development, under which the Armenia E-Society and Innovation for Competitiveness Program started in 2011. The Program consists of several projects aimed at strengthening the ICT infrastructure within Armenia, taking actions to foster the industry development and formation of e-society. The program includes the following projects: Pan-Armenian Broadband Access and Management Network, Introduction of a Certification Center in Armenia, Computer for All, Gyumri Technology Center, Financial Support to Companies Needing Innovative Knowledge and Technologies, Assistance to IT/Research Industry Development, and others.

In 2011, the USAID funded Economic Development and Market Competitiveness (EDMC) project was launched, targeting SME capacity building in IT sector among others. The overall budget of the project is USD 17 million[7].

In 2012, the Government of Armenia, USAID, National Instruments (NI), State Engineering University of Armenia (SEUA) and Enterprise Incubator Foundation (EIF) jointly initiated a project to establish the Armenian National Engineering Lab (ANEL). The main goal of the Project is to meet the demand of the engineering industry for quality specialists and graduates educated on the latest technology to confront the employee shortage and to increase value-added of and innovation in the Armenian high-

[7] http://www.edmc.am/category/activities/vc/high-tech/

tech businesses, thus increasing their international competitiveness. Efforts towards the expansion of research and development activities in the country, as well as leveraging private sector experience and R&D potential, will allow the implementation of the most challenging part of the project: to establish a strong public-private partnership and promote the development of technology innovation.

Armenian IT/High-Tech Representative office was officially launched in December 2012 at Plug&Play Tech Center in Silicon Valley, California. The office will act as a hub to foster the development of sales and investment opportunities for Armenian IT and high-tech companies in the US. It will ensure Armenian IT visibility and presence in the US marketplace, introduce and market Armenian IT capabilities and products in the US, as well as assist with the establishment of business links between Armenia-based companies and US firms and investors.

In December 2012, the Government of Armenia and Intel Corporation signed a Memorandum of Understanding on cooperation in the sphere of education and R&D. Under this Memorandum, Intel will expand its joint efforts with Armenia towards increasing the rate of computer dispersion in schools, training of teachers, creation of educational content, as well as establishing new partnerships in software development and joint research initiatives.

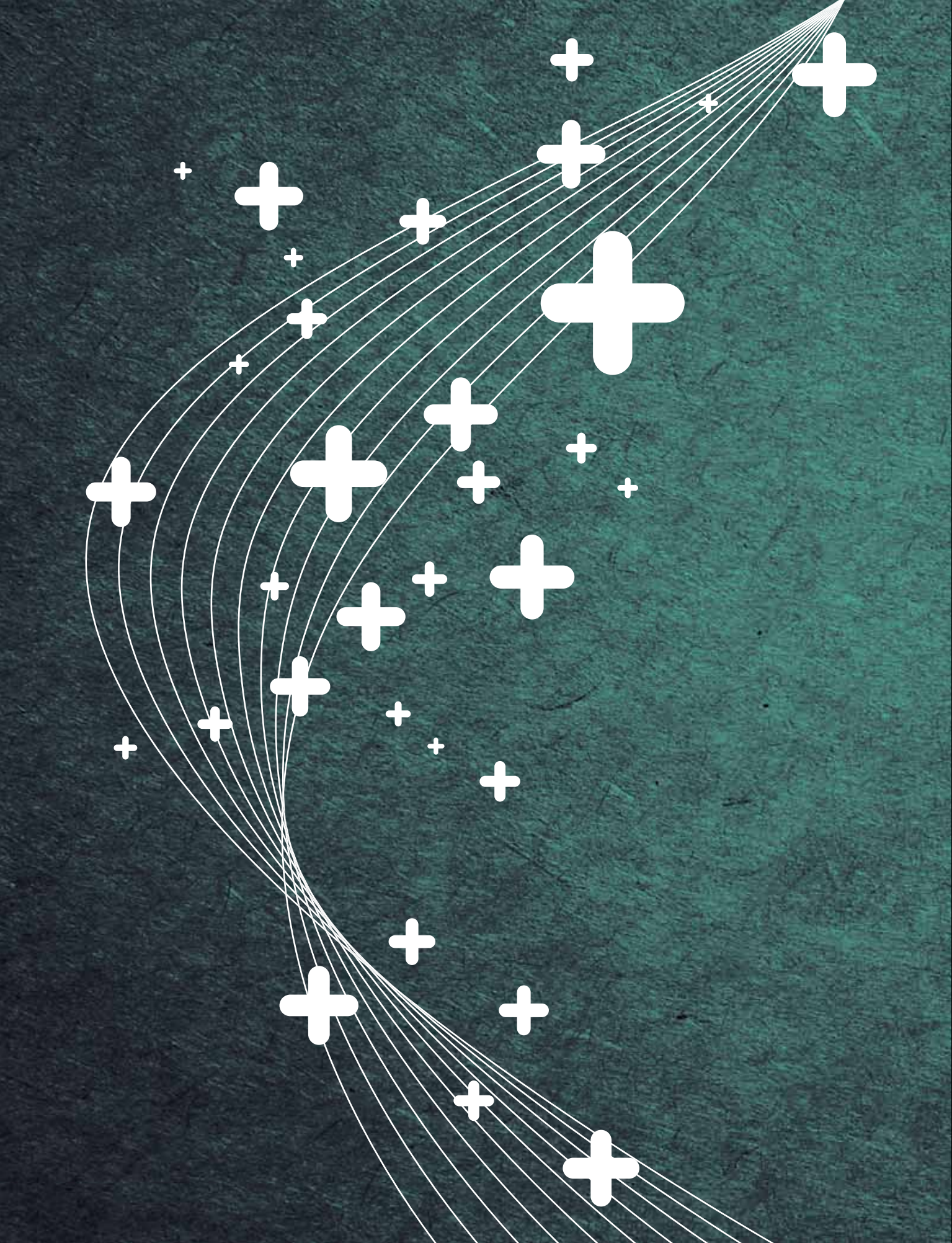
Another Memorandum of Understanding was signed in December 2012 between the Government of Armenia and Corporacion America to establish and launch the production of semiconductors and an IT research and development center in Armenia.

In 2012, the first free economic zone (FEZ) was established in Armenia, pursuing the goal to contribute to a rise in export volumes and the creation of new jobs, as well as ensure sustainable economic development through attracting foreign direct investments and introducing advanced technologies. The free economic zone established at RAO MARS CJSC and The Yerevan Computer R&D Institute CJSC is oriented towards the production and export of innovative and high technologies in the field of electronics, precision engineering, pharmaceutical and biotechnologies, information technologies, alternative energy, industrial design and telecommunications (elaboration and production of technological equipment, systems and materials for data/information transfer). Free economic zone operators are exempted from VAT, property tax, and customs duties.

Armenia was the coordinator of the Black Sea Economic Cooperation Working Group on Information and Communication Technologies for 1.5 years starting in July 2011.

IT INDUSTRY GROWTH TARGETS / 2018

HOME COMPUTER PENETRATION	70%
EDUCATIONAL COMPUTER PENETRATION	100%
CENTRAL AND LOCAL GOVERNMENT COMPUTER PENETRATION	100%
POPULATION INTERNET PENETRATION	90%
STATE AUTHORITY SPENDING ON LOCALLY DEVELOPED IT PRODUCTS, % OF NATIONAL BUDGET	>1%
DOMESTIC SPENDING ON LOCALLY DEVELOPED IT PRODUCTS, % OF GDP	>2%
SHARE OF E-SERVICES IN ALL SERVICES PROVIDED BY GOVERNMENT AUTHORITIES	80%
NUMBER OF IT COMPANIES WITH FOREIGN CAPITAL	1000 200
IT WORKFORCE	20,000
PRODUCTIVITY, OUTPUT PER EMPLOYEE	50,000 USD
INDUSTRY REVENUES	1 BLN USD
EXPORTS	700 MLN USD
IT COMPANIES WITH ≥ 1,000 EMPLOYEES	>1
IT COMPANIES OFFERING R&D SERVICES	100-200
LARGE TECHNOCITY TECHNOPARKS & INCUBATORS	>1 >10
VENTURE CAPITAL FUNDS COMMITTED	>700 MLN USD
LOCAL OPEN JOINT STOCK COMPANIES (REGISTERED AT ARMENIAN STOCK EXCHANGE)	50 ,100
LOCAL OPEN JOINT STOCK COMPANIES (REGISTERED AT INTERNATIONAL STOCK EXCHANGES)	>5



APPENDICES

INDUSTRY STATISTICS

NUMBER OF COMPANIES	2012	% FROM INDUSTRY	2008	% FROM INDUSTRY	% CHANGE 2012/ 2008	CAGR 2012/ 2008
INDUSTRY	360	100%	175	100%	106%	19,8%
LOCAL FIRMS	209	58%	119	68%	76%	15,1%
ISPS	18	5%	20	11%	-10%	-2,6%
FOREIGN BRANCHES	151	42%	56	32%	170%	28,1%
ISPS	15	4%	3	2%	400%	49,5%
COMPANY OWNERSHIP GEOGRAPHY						
INDUSTRY	360	100%	175	100%	106%	19,8%
ARMENIA	209	58%	119	68%	76%	15,1%
USA & NORTH AMERICA	72	20%	36	21%	100%	18,9%
EUROPE	36	10%	9	5%	300%	41,4%
RUSSIA & CIS	29	8%	10	6%	190%	30,5%
OTHER	14	4%	1	1%	1300%	93,4%
EXPORTS GEOGRAPHY, MILLIONS OF U.S. DOLLARS						
INDUSTRY	$119.6	100%	$69,4	100%	72%	14,6%
USA & NORTH AMERICA	$64,1	54%	$41,0	59%	56%	11,8%
EUROPE	$37,4	31%	$12,7	18%	196%	31,1%
RUSSIA & CIS	$7,2	6%	$11,8	17%	-39%	-11,6%
OTHER	$10,9	9%	$4,0	6%	174%	28,6%
PRODUCTIVITY (AVERAGE OUTPUT PER TECHNICAL EMPLOYEE EXCLUDING ISPS), U.S. DOLLARS						
INDUSTRY	$37,286	100%	$26,115	100%	43%	9,3%
LOCAL FIRMS	$36,356	98%	$22,366	86%	63%	12,9%
FOREIGN BRANCHES	$38,216	102%	$29,757	114%	28%	6,5%

INDUSTRY TURNOVER, (NACE CLASSIFICATION) MILLIONS OF U.S. DOLLARS	2012	% FROM INDUSTRY	2011	% FROM INDUSTRY	2012/ 2011	CAGR 2012/ 2011
SOFTWARE AND SERVICES	$244,35	100%	$197,90	100%	23%	23%
58.2 SOFTWARE PUBLISHING	$22,8	9%				
58.21 PUBLISHING OF COMPUTER GAMES	$7,1	3%				
58.29 OTHER SOFTWARE PUBLISHING	$15,7	6%				
62.0 COMPUTER PROGRAMMING, CONSULTANCY AND RELATED ACTIVITIES	$221,4	91%				
62.01 COMPUTER PROGRAMMING ACTIVITIES	$138,2	57%				
62.02 COMPUTER CONSULTANCY ACTIVITIES	$29,8	12%				
62.03 COMPUTER FACILITIES MANAGEMENT ACTIVITIES	$27,7	11%				
62.09 OTHER INFORMATION TECHNOLOGY AND COMPUTER SERVICE ACTIVITIE	$25,7	11%				
TELECOMMUNICATIONS	$456,23	100%	$387,80	100%	18%	18%
61.1 WIRED TELECOMMUNICATIONS ACTIVITIES						
61.10 WIRED TELECOMMUNICATIONS ACTIVITIES	$96					
61.2 WIRELESS TELECOMMUNICATIONS ACTIVITIES						
61.20 WIRELESS TELECOMMUNICATIONS ACTIVITIES	$246					
61.9 OTHER TELECOMMUNICATIONS ACTIVITIES						
61.90 OTHER TELECOMMUNICATIONS ACTIVITIES	$0,6					
63.1 DATA PROCESSING, HOSTING AND RELATED ACTIVITIES; WEB PORTALS	$0,63					
OTHER INCOME IN TELECOM INDUSTRY	$113					

SOFTWARE AND INTERNET SERVICES INDUSTRY TURNOVER, MILLIONS OF U.S. DOLLARS	2012	% FROM INDUSTRY	2008	% FROM INDUSTRY	2012/ 2008	CAGR 2012/ 2008
INDUSTRY	$320,9	100%	$111,3	100%	188%	30,3%
LOCAL FIRMS	$107,7	34%	$50,1	45%	115%	21,1%
DOMESTIC MARKET	$201,3	63%	$41,9	38%	381%	48,1%
FOREIGN BRANCHES	$213,2	66%	$61,2	55%	249%	36,6%
LOCAL FIRMS	$67,0	20,9%	$31,1	28%	116%	21,2%
SOFTWARE AND IT CONSULTING	$53,6	17%	$21,4	19%	150%	25,7%
INTERNET SERVICES	$13,4	4%	$9,6	9%	39%	8,6%
FOREIGN BRANCHES	$134,3	41,9%	$10,8	10%	1142%	87,7%
SOFTWARE AND IT CONSULTING	$71,2	22%	$5,1	5%	1291%	93,1%

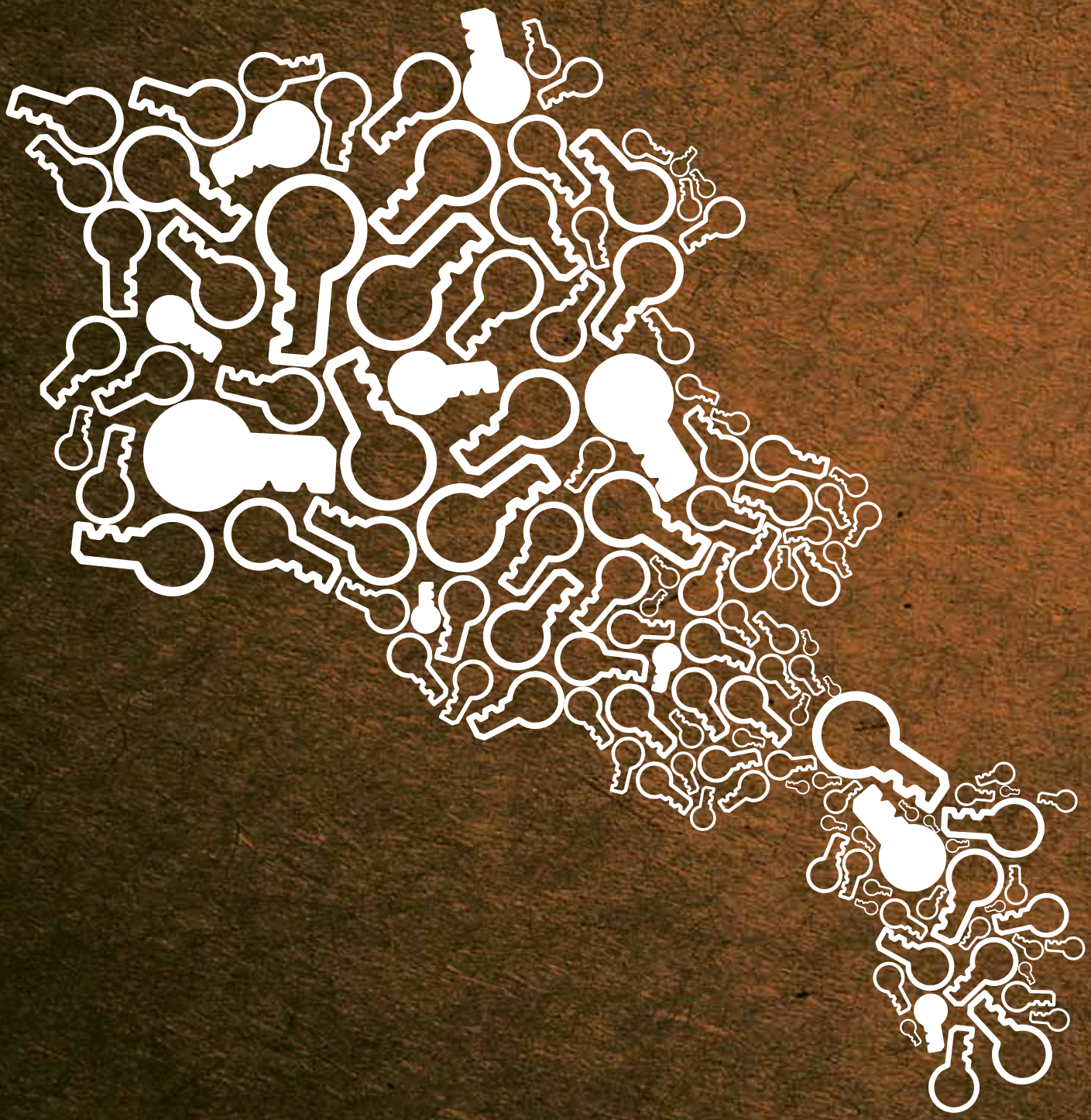
INTERNET SERVICES	$63,1	20%	$5,7	5%	1009%	82,5%
EXPORTS	$119,6	37%	$69,4	62%	72%	14,6%
LOCAL FIRMS	$20,3	6%	$19,1	17%	6%	1,6%
FOREIGN BRANCHES	$99,3	31%	$50,3	45%	97%	18,5%
INDUSTRY	$320,9	100%	$111,3	100%	188%	30,3%
SOFTWARE AND IT CONSULTING	$244,4	76%	$96,0	86%	155%	26,3%
INTERNET SERVICES	$76,5	24%	$15,3	14%	399%	49,5%
WORKFORCE DISTRIBUTION*	2012	% FROM INDUSTRY	2008	% FROM INDUSTRY	% CHANGE 2012/ 2008	CAGR 2012/ 2008
INDUSTRY	9,354	100%	4,890	100%	91%	17,6%
TECHNICAL SPECIALISTS	7,005	75%	4,250	87%	65%	13,3%
MANAGEMENT	2,349	25%	640	13%	267%	38,4%
SOFTWARE AND IT CONSULTING	7,165	77%	4,220	86%	70%	14,2%
LOCAL FIRMS	3,508	38%	2,100	43%	67%	13,7%
FOREIGN BRANCHES	3,657	39%	2,120	43%	73%	14,6%
INTERNET SERVICES	2,189	23%	670	14%	227%	34,4%
LOCAL FIRMS	638	7%	360	7%	77%	15,4%
FOREIGN BRANCHES	1,551	17%	310	6%	400%	49,6%
LOCAL FIRMS	4,276	46%	2,460	50%	74%	14,8%
TECHNICAL SPECIALISTS	3,229	35%	2,110	43%	53%	11,2%
MANAGEMENT	1,047	11%	350	7%	199%	31,5%
FOREIGN BRANCHES	5,078	54%	2,430	50%	109%	20,2%
TECHNICAL SPECIALISTS	3,776	40%	2,140	44%	76%	15,3%
MANAGEMENT	1,302	14%	290	6%	349%	45,6%
SOFTWARE AND IT CONSULTING	7,165	77%	4,220	86%	70%	14,2%

* **Totals may differ due to rounding**

TECHNICAL SPECIALISTS	4,816	51%	3,680	75%	31%	7,0%
MANAGEMENT	2,349	25%	540	11%	335%	44,4%
INTERNET SERVICES	2,189	23%	680	14%	222%	33,9%
TECHNICAL SPECIALISTS	2,189	23%	580	12%	277%	39,4%

SPECIALIZATIONS, % OF FIRMS	INDUSTRY, 2012	LOCAL FIRMS, 2012	FOREIGN BRANCH-ES, 2012	INDUSTRY, 2008	LOCAL FIRMS, 2008	FOREIGN BRANCH-ES, 2008
CUSTOMIZED SOFTWARE AND OUTSOURCING	30%	10%	8%	23,2%	13,7%	9,5%
CHIP DESIGN, TESTING, AND RELATED	5%	1%	2%	3,9%	1,4%	2.5%
INTERNET SERVICES	11%	5%	1%	8,1%	7,0%	1,1%
NETWORKING SYSTEMS AND COMMUNICATIONS	15%	6%	3%	7,4%	3,5%	3,9%
INTERNET APPLICATIONS AND ECOMMERCE	13%	6%	2%	8,4%	6,0%	2,5%
IT SERVICES AND CONSULTING	27%	10%	4%	10,2%	7,4%	2,8%
ACCOUNTING, BANKING, AND FINANCIAL SOFTWARE	10%	4%	2%	6,3%	5,3%	1,1%
WEB DESIGN AND DEVELOPMENT	28%	13%	4%	12,6%	10,2%	2,5%
COMPUTER GRAPHICS, MULTIMEDIA, AND GAMES	9%	4%	1%	4,9%	4,6%	0,4%
DATABASES & MIS	11%	5%	2%	6,7%	5,3%	1,4%
OTHER	13%	3%	4%	8,4%	4,6%	3,9%

SPECIALIZATIONS, REVENUES, MILLIONS OF U.S. DOLLARS	INDUS-TRY, 2012	LOCAL FIRMS, 2012	FOREIGN BRANCHES 2012	INDUS-TRY, 2008	LOCAL FIRMS, 2008	FOREIGN BRANCH-ES, 2008
CUSTOMIZED SOFTWARE AND OUTSOURCING	$58,6	$31,6	$27,0	$22,9	$10,1	$12,8
CHIP DESIGN, TESTING, AND RELATED	$49,1	$3,9	$45,2	$17,5	$1,1	$16,4
INTERNET SERVICES	$76,6	$13,6	$63,0	$15,3	$9,6	$5,7
NETWORKING SYSTEMS AND COMMUNICATIONS	$20,2	$10,7	$9,5	$10,6	$2,2	$8,4
INTERNET APPLICATIONS AND ECOMMERCE	$7,8	$3,6	$4,2	$9,3	$1,6	$7,8
IT SERVICES AND CONSULTING	$29,8	$11,9	$17,9	$7,0	$5,2	$1,7
ACCOUNTING, BANKING, AND FINANCIAL SOFTWARE	$15,7	$8,1	$7,6	$7,1	$5,9	$1,2
WEB DESIGN AND DEVELOPMENT	$22,5	$9,9	$12,6	$3,9	$2,9	$1,0
COMPUTER GRAPHICS, MULTIMEDIA, AND GAMES	$7,1	$4,2	$2,9	$3,5	$3,4	$0,0
DATABASES & MIS	$7,5	$4,1	$3,4	$3,1	$2,4	$0,7
OTHER	$25,7	$9,7	$16,0	$11,1	$5,7	$5,4



KEY FACTS ABOUT ARMENIA

KEY FACTS ABOUT ARMENIA

The Republic of Armenia, formerly one of the fifteen Soviet republics, declared its independence on September 21, 1991 based on the results of a nation-wide referendum (99% aye vote). Its capital and largest city is Yerevan.

GEOGRAPHY

Armenia is located in the South Caucasus region of the Eurasia continent. Bordering countries are Azerbaijan (east and southwest), Georgia (north), Iran (south), and Turkey (west). Land area is approximately 29,800 square kilometers or 11,500 square miles. Armenia is a mountainous country with an average elevation 1,800 meters or 5,900 feet above sea level. The climate is sunny, dry, and continental with hot summers and moderate to cold winters.

POPULATION

According to 2011 data, the population is 3.2 million with approximately 67% residing in cities and towns. Armenian is the official language. Armenians are fluent in Russian, and many, especially in Yerevan, are also proficient in English. The population of Armenia is highly educated with 98% literacy rate for residents over 17 years old. The Armenian educational system has two levels, which includes secondary and higher educational institutions. The largest universities are Yerevan State University and State Engineering University. Armenia was the first country to have officially adopted Christianity as its state religion in 301 A.D.

GOVERNMENT SYSTEM

The Republic of Armenia is a sovereign, democratic, social state governed by rule of law. The state power is exercised under the Constitution and laws, on the principle of separation of legislative, executive and judicial authorities. The president of Armenia is the head of the state. The president is elected by the citizens

of Armenia for a five year term and a maximum of two consecutive terms. The President of Armenia is Serzh Sargsyan, who was re-elected on February 18, 2013.

The Government of Armenia is the executive power. The Government consists of the Prime Minister and ministers. Based on the distribution of deputy seats at the National Assembly and consultations with parliamentary factions, the President appoints the person enjoying the trust of the majority deputies to be Prime Minister, or the person having the trust of the largest number of deputies. The President appoints and dismisses the members of the Government on the recommendations of the Prime Minister.

The supreme legislative power is the single-chamber National Assembly. It consists of 131 members, who are elected by the people for 5-year terms. The latest elections took place in May 2012.

ECONOMY

Major industries: non-ferrous metallurgy, electric energy, electronics, electric engines, chemical and petrochemical, metal cutting machine tools, software development, wood working, mining, building materials and construction, furniture, watches, health care, food processing and beverages, jewelry, instruments, diamond cutting, textiles and shoes, silk fabric, tobacco, tourism and tires. According to the 2012 Index of Economic Freedom compiled by the Heritage Foundation and the Wall Street Journal, Armenia is the 38th freest economy in the world (Sweden 18, Belgium 40, Latvia 55).

MAIN ECONOMIC INDICATORS[8]

	2003	2004	2005	2006	2007	2008	2009	2010	2011
GROSS DOMESTIC PRODUCT, (GDP), BILLION USD	$2.80	$3.56	$4.87	$6.41	$9.20	$11.9	$8.54	$9.39	$10.1
REAL GDP GROWTH, % CHANGE OVER PREVIOUS YEAR	13.9%	10.1%	13.9%	13.4%	13.8%	6.8%	-19.7%	2.6%	7.2%
INFLATION, ANNUAL AVERAGE	4.7%	7.0%	0.6%	2.9%	6.0%	9.0%	-5.1%	8.2%	4.7%
UNEMPLOYMENT RATE	31.2%	31.6%	31.2%	27.8%	28.7%	16.4%	18.7%	19%	18.4%
AVERAGE WAGE, ANNUAL AVERAGE, USD	$674	$980	$1,365	$1,846	$2,718	$3,429	$3,487	$3,302	$3,487
EXPORTS, BILLION USD	$0.68	$0.72	$0.95	$1.00	$1.16	$1.06	$0.68	$1.01	$1.3
IMPORTS, BILLION USD	$1.27	$1.35	$1.77	$2.20	$3.28	$4.41	$3.31	$3.78	$4.1
EXCHANGE RANGE USD/AMD, REPORTING PERIOD AVERAGE	578.80	533.45	457.69	416.04	342.08	305.97	363.28	373.66	372.46

[8]Source: the Central Bank of Armenia, www.cba.am, National Statistical Service of the Republic of Armenia, www.armstat.am

SCIENCE AND TECHNOLOGY IN ARMENIA, TIMELINE

SCIENCE AND TECHNOLOGY IN ARMENIA / TIMELINE

YEAR	SOVIET ARMENIA ESTABLISHMENTS AND EVENTS
1919	YEREVAN STATE UNIVERSITY (YSU)
1924	DEPARTMENT OF PHYSICS AND MATHEMATICS AT YSU
1933	YEREVAN POLYTECHNIC INSTITUTE (STATE ENGINEERING UNIVERSITY OF ARMENIA, SEUA)
1935	ARMENIAN BRANCH OF USSR ACADEMY OF SCIENCES
1942	YEREVAN PHYSICS INSTITUTE
1943	ARMENIAN ACADEMY OF SCIENCES (NATIONAL ACADEMY OF SCIENCES, NAS)
1946	BYURAKAN ASTROPHYSICAL OBSERVATORY
1955	NAS INSTITUTE OF MECHANICS
1956	YEREVAN SCIENTIFIC RESEARCH INSTITUTE OF MATHEMATICAL MACHINES (YERSRIMM)
1957	INSTITUTE OF INFORMATICS AND AUTOMATION PROBLEMS
1958	"TRANSISTOR" SEMICONDUCTOR R&D AND MANUFACTURING PLANT
1959	FIRST GENERATION COMPUTER "ARAGATS" ON VACUUM TUBES AT YERSRIMM
1960	NAS INSTITUTE OF RADIOPHYSICS AND ELECTRONICS DEPARTMENT OF CYBERNETICS AT SEUA
1961	SECOND GENERATION COMPUTER "HRAZDAN" ON SEMICONDUCTORS AT YERSRIMM
1963	DEVELOPMENT OF MICROPROGRAMMED COMPUTERS "NAIRI" AT YERSRIMM
1964	"SIRIUS" RADIOELECTRONICS PLANT IN CITY OF ABOVYAN
1965	"POSISTOR" MICROELECTRONICS FACTORY IN CITY OF ABOVYAN
1966	INSTITUTE OF MICROELECTRONICS, SCIENTIFIC RESEARCH, AND TECHNOLOGY
1967	NAS INSTITUTE OF PHYSICAL RESEARCH
1971	NAS INSTITUTE OF MATHEMATICS DEPARTMENT OF INFORMATICS AND APPLIED MATHEMATICS AT YSU
1972	DEPARTMENT OF RADIO ENGINEERING AT SEUA
1973	ES-1030 COMPUTER (IBM 360/370) AT YERSRIMM

1976	"NAIRI-3" COMPUTER WITH SHARED USAGE CAPABILITIES AT YERSRIMM
1978	YEREVAN TELECOMMUNICATIONS RESEARCH INSTITUTE ES-1045 COMPUTER (IBM 360/370) AT YERSRIMM
1979	DEPARTMENT OF CALCULATING TECHNIQUES (COMPUTER SYSTEMS) AT SEUA
1980	NAS INSTITUTE OF APPLIED PROBLEMS OF PHYSICS
1981	"NAIRI-4" COMPUTER (PDP COMPATIBLE) AT YERSRIMM
1984	ES-1046 COMPUTER (IBM 360/370) AT YERSRIMM SEUA BRANCHES IN CITIES OF KAPAN AND GORIS
1946	BYURAKAN ASTROPHYSICAL OBSERVATORY
1986	ASHTARAK SEMICONDUCTOR AND ELECTRONICS MANUFACTURING PLANT ($120 MILLION INVESTMENT)
1987	FIRST ARMENIAN PRIVATE IT FIRM "ARMENIAN SOFTWARE"
1988	"MARS" INTEGRATED CIRCUITS AND ELECTRONICS MANUFACTURING PLANT ($300 MILLION INVESTMENT)
1990	NAS ENGINEERING CENTER "MASHTOTS" (ATOMIC OPTICS, THIN FILM PHYSICS)
	INDEPENDENT ARMENIA ESTABLISHMENTS AND EVENTS
1991	ARMENIA DECLARES INDEPENDENCE ON SEPTEMBER 21 AMERICAN UNIVERSITY OF ARMENIA (AUA)
1992	YEREVAN AUTOMATED CONTROL SYSTEMS SCIENTIFIC RESEARCH INSTITUTE (YERACSSRI) ARMINCO (LEADING ISP IN ARMENIA)
1994	MSHAK (ARMENIA'S LEADER IN CNC SYSTEMS AND TOOLS)
1995	HPL (U.S., YIELD MANAGEMENT SOFTWARE; ACQUIRED BY SYNOPSYS IN 2005) ARMENTEL (ARMENIA'S LEADING TELEPHONE COMPANY)
1997	RUSSIAN-ARMENIAN (SLAVONIC) STATE UNIVERSITY
1998	ACQUISITION OF ARMENTEL BY GREEK TELECOM OTE CREDENCE SYSTEMS (U.S., SEMICONDUCTOR DESIGN-TO-TEST SOLUTIONS) REPRESENTATIVE OFFICES: ALCATEL, SIEMENS AG
1999	VIRAGE LOGIC (U.S., ADVANCED EMBEDDED MEMORY IP)
2000	UNION OF INFORMATION TECHNOLOGY ENTERPRISES (UITE, ARMENIAN IT ASSOCIATION) VIASPHERE TECHNOPARK (U.S., COMMERCIAL TECHNOLOGY PARK) LEDA SYSTEMS (U.S., DIGITAL STANDARD CELLS AND I/O LIBRARIES; ACQUIRED BY SYNOPSYS IN 2004) EPYGI TECHNOLOGIES (U.S., IP PBXS)
2001	"MICROELECTRONIC CIRCUITS AND SYSTEMS" CHAIR AT SEUA IN COOPERATION WITH LEDA SYSTEMS ICT MASTER STRATEGY AND INFORMATION TECHNOLOGIES DEVELOPMENT SUPPORT COUNCIL (ITDSC) EUROPEAN REGIONAL INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN ARMENIA (ERIICTA)
2002	ENTERPRICE INCUBATOR FOUNDATION (EIF) LYCOS EUROPE (GERMANY, PAN-EUROPEAN ONLINE NETWORK)
2003	EPAM SYSTEMS (U.S., GLOBAL OFFSHORE SOFTWARE DEVELOPMENT FIRM)
2004	SYNOPSYS INC. (U.S., WORLD LEADER IN SEMICONDUCTOR DESIGN SOFTWARE) CQG (U.S., ANALYTICS SOFTWARE AND TRADING SOLUTIONS)
2005	VIVACELL (SECOND MOBILE OPERATOR IN ARMENIA) LUXOFT (RUSSIA'S LEADING SOFTWARE DEVELOPMENT FIRM)
2006	MICROSOFT CORPORATION, REPRESENTATIVE OFFICE ACQUISITION OF ARMENTEL BY RUSSIAN MOBILE OPERATOR VIMPELCOM (BEELINE)
2007	NATIONAL INSTRUMENTS CORPORATION (U.S., GLOBAL LEADER IN VIRTUAL INSTRUMENTATION SOLUTIONS) MACADAMIAN (CANADA, FULL-RANGE SOFTWARE DEVELOPMENT AND RELATED SERVICES FIRM) ACQUISITION OF VIVACELL BY RUSSIAN MOBILE OPERATOR MOBILE TELESYSTEMS (MTS)

SCIENCE AND TECHNOLOGY IN
ARMENIA, TIMELINE

2008	MENTOR GRAPHICS (U.S., A WORLD LEADER IN ELECTRONIC HARDWARE / SOFTWARE DESIGN SOLUTIONS) NEW IT INDUSTRY STRATEGY ADOPTED BY THE GOVERNMENT OF ARMENIA ORANGE SA (FRANCE TELECOM) WON THE STATE TENDER FOR THE THIRD MOBILE OPERATOR IN ARMENIA
2009	ICON COMMUNICATIONS WIMAX NETWORK IN YEREVAN ORANGE ARMENIAS NATIONWIDE 3G+ NETWORK NEW FIBER-OPTIC CHANNEL BY GNC-ALFA CONNECTING ARMENIA TO THE GLOBAL INTERNET UCOM COMMUNICATIONS TRIPLE-PLAY FIBER NETWORK IN ARMENIA
2010	SYNOPSYS INC. ACQUISITION OF VIRAGE LOGIC
2011	OPENING OF MICROSOFT INNOVATION CENTER AT SEUA OPENING OF ARMENIAN-INDIAN CENTER FOR EXCELLENCE IN ICT AT YSU ESTABLISHMENT OF REGIONAL MOBILE APPLICATION LABORATORY OPENING OF D-LINK INTERNATIONAL REGIONAL SOFTWARE DEVELOPMENT LABORATORY IN GYUMRI ACQUISITION OF ICON COMMUNICATIONS BY UCOM COMMUNICATIONS OFFICIAL ANNOUNCEMENT OF ST KINETICS (SINGAPORE TECHNOLOGIES KINETICS LTD) ONE OF THE LARGEST ENGINEERING COMPANYS ENTRY INTO ARMENIA
2012	OPENING OF ARMENIAN IT SALES REPRESENTATIVE OFFICE IN THE PLUG & PLAY TECH CENTER, IN SILICON VALLEY, USA ESTABLISHMENT OF ARMENIAS FIRST FREE ECONOMIC ZONE IN THE TERRITORY OF CJSC RAO MARS AND YERSRIMM FOR PRODUCTION AND EXPORT OF HIGH-TECH AND INNOVATIVE TECHNOLOGIES OPENING OF MICROSOFT IT ACADEMY AT SEUA THE GOVERNMENT OF ARMENIA SIGNS MEMORANDUMS OF UNDERSTANDINGS WITH INTEL CORPORATION (ON COOPERATION IN THE FIELD OF EDUCATION AND R&D) AND WITH ARGENTINIAN CORPORATION AMERICA (ON OPENING PRODUCTION OF SEMICONDUCTORS) SIGNING OF MEMORANDUM OF UNDERSTANDING ON THE FIRST ARMENIAN VENTURE CAPITAL FUND TO FINANCE IT START-UPS INTRODUCTION OF IDRAM INTERNET PAYMENT SYSTEM IN ARMENIA OFFICIAL OPENING OF WIKIMEDIA FOUNDATION IN ARMENIA ACQUISITION OF INTERACTIVE TV AND NETSYS BY UCOM COMMUNICATIONS

MINISTRY OF ECONOMY OF THE REPUBLIC OF ARMENIA

The history of the Ministry of Economy dates back to 1965 when the Material and Technical Supply Department within the government of the Soviet Armenia was established by the decree of the Supreme Council of the Armenian SSR. In 1978, the Department was renamed the Material Supply State Committee, and later in 1992, the Committee became the Ministry of Material Resources of the Republic of Armenia. Between 1995-2002, the Ministry of Material Resources, the Ministry of Trade, and the department of Foreign Tourism, and later the Ministry of Industry, and the Ministry of Economy merged and in 2002 were reorganized into the Ministry of Trade and Economic Development. According to the Presidents Decree of April 21, 2008, the Ministry was renamed the Ministry of Economy of the Republic of Armenia. Today, the Ministry covers a large number of areas including economic policy, regional development, science and innovation policy, foreign economic cooperation and investment policy, information technology industry development, relationships with the EU and WTO, natural resources, trade policy, standardization and metrology, intellectual property, tourism sector development, and others.

THE 3-YEAR STRATEGY OF THE MINISTRY RECENTLY ADOPTED BY THE GOVERNMENT IS INTENDED TO:

- Create a productive and transparent management system
- Form a competitive environment supporting the sustainable and proportional development of the Armenian economy
- Build an entrepreneurial and investment-friendly business environment
- Support productive public-private sector cooperation
- Promote integration into the global economy parallel with improving the competitiveness of Armenia
- Design and implement a diversified industrial policy aimed at developing priority sectors of the economy
- Support the transition of Armenia towards a resource-saving and knowledge-based economy.

Ministry of Economy of the Republic of Armenia
5 Mher Mkrtchyan street, Yerevan 0010, Armenia
Phone: +374 10 566 185, Fax: +374 10 526 577
http://www.mineconomy.am/

USAID ENTERPRISE DEVELOPMENT AND MARKET COMPETITIVENESS (EDMC) PROJECT

USAID/EDMC is a five-year project launched in October 2011. The goal of the project is to ensure sustainable economic growth in Armenia through supporting small and medium-size enterprise (SME) development, increasing employment, promoting exports, and income growth. The project supports SMEs, business unions and associations, as well as other stakeholders in four target sectors: high technologies, pharmaceuticals, food processing (fruits, vegetables, and herbs), and tourism.

In the High Technologies sector, EDMC encourages cross-sector synergies and innovation, supports the development of skilled specialists, and promotes market expansion.

In the Pharmaceutical/Biotechnology sector, EDMC supports compliance with international standards and promotes professional workforce development, as well as market expansion of Armenian products.

In the Food Processing sector, EDMC targets fruit, vegetable, and herbal processing in order to improve food safety and quality, promote prerequisites to standards, and encourage market expansion.

In the Tourism sector, EDMC promotes rural and cultural tourism in Armenia, as well as the development of regional tourism packages and the provision of quality services in the sector.

EDMC EMPLOYS THE FOLLOWING FOUR TECHNICAL APPROACHES:

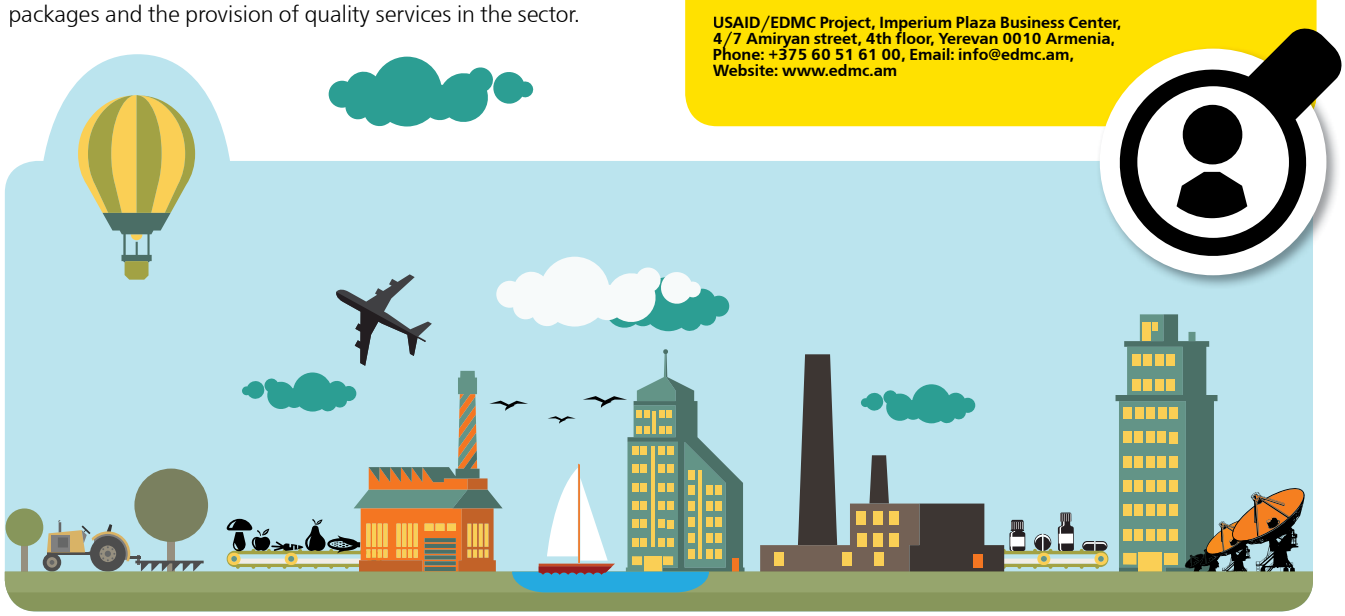
The Value Chain Competitiveness Component works to enhance SME competitiveness and productivity through the introduction of new technologies and innovation, development of managerial skills, and by helping companies to expand existing markets and reach new ones.

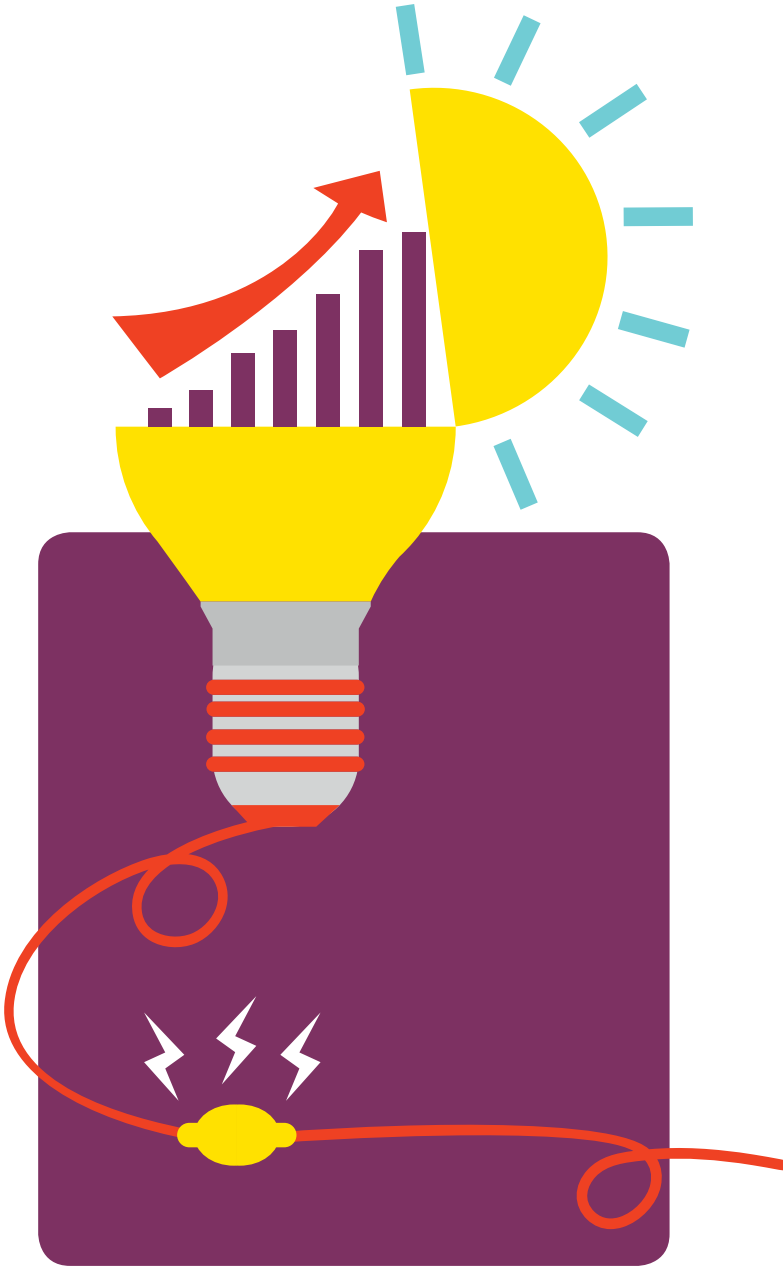
The mission of the Workforce & Entrepreneurship Development Component is to support SMEs and academic institutions in order to enhance the competitiveness of Armenias workforce. The focus is on defining and effectively addressing labor supply and demand shortfalls that limit enterprise competitiveness.

The Business Environment Improvement Component aims to enhance Armenias business enabling environment by developing and promoting effective implementation of key recommendations for improving laws and secondary legislation and related institutional oversight systems critical to increasing the volume and efficiency of investment in the supported sectors.

The Access to Finance Component partners with several Armenian commercial banks to help improve their services to SMEs from the four supported sectors. Tailored technical assistance is provided to partner banks including development of new services to address sector financing gaps, risk management, credit scoring, outreach, loan underwriting and approval systems.

USAID/EDMC Project, Imperium Plaza Business Center, 4/7 Amiryan street, 4th floor, Yerevan 0010 Armenia, Phone: +375 60 51 61 00, Email: info@edmc.am, Website: www.edmc.am





ENTERPRISE INCUBATOR FOUNDATION

Enterprise Incubator Foundation or EIF is a business development and incubation agency operating in Yerevan, Armenia. EIF was established by the Government of Armenia within the framework of the World Banks Enterprise Incubator project to support the development of Armenia's Information Technology sector. EIF's objectives are to improve the competitiveness of Armenian IT companies in the global marketplace, build linkages with business communities in key technology markets, improve access of local IT companies to knowledge and information on best practices and experience, and assist Armenian firms with attracting local and foreign investors.

Enterprise Incubator provides a comprehensive package of services via its two major components:

Business Services focus on assisting Armenian technology firms in a variety of areas including business development, marketing and promotion, management, accounting and finance, legal, and other areas vital to the success of a company. The Business Services component helps existing companies in growing their businesses within Armenia and internationally, facilitates the development of start-ups, and assists local entrepreneurs in building their ideas into successful businesses. As part of its assistance, EIF helps companies to improve the professional and business skills of business and technical employees via the provision of short-term advanced trainings and seminars and the creation of learning partnerships within the industry and the universities.

Facility Services component provides high-end facilities to existing technology companies and newly created start-ups. Options included in the base package are high-quality office space, shared meeting and conference rooms, a shared resource center with access to literature and other informational resources, high-speed Internet connection, receptionist and security, and 24-hour access to the facility. The facilities are located on the premises of the Russian-Armenian (Slavonic) University, one of the largest universities in Armenia.

EIF signifies the development of long-term relationships with organizations and individuals worldwide interested in mutually beneficial business collaboration. It works closely with many technology companies in Armenia and may serve as a major channel to creating successful partnerships with Armenian enterprises. Individuals and companies interested in developing partnerships or investing in Armenia are encouraged to contact EIF at the below address.

Enterprise Incubator Foundation
123 Hovsep Emin street, Yerevan 0051, Armenia
Phone: +374 10 219 797, Fax: +374 10 219 777
E-mail: info@eif.am, http://www.eif-it.com

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