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The Inclusion of Gender Component in ICT Development Policy and Information Society Building in Armenia

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1. Executive Summary

Over the last years, the world has witnessed ongoing growth in the uptake of Information and Communication Technologies (ICT). Today's world is already digitalized. Over 95% of all jobs now have a digital component and in many jobs the importance of digital tools will increase in the future. Armenia needs more skilled specialists including women and girls in ICT sector.

We live in an Information Society (E-Society) era. Information and communication technologies (ICT) are tools which can foster gender equality, women's empowerment, and the society will benefit from gender equal participation in decision-making policies and equal access to ICT services. In regard to education, workforce, accessibility, entrepreneurship as well as leadership, women's recruitment, retention, and participation remain unsatisfactory as women are under-represented at all ICT levels in Armenia.

The pattern of under-representation of women in ICT labor market and Information Society (IS) Development will continue if more steps are not taken to educate, support and encourage girls and women with role models success in ICT and finally to include gender component in ICT and IS Development policies.

The results of this research show, that:

- *Statistics about women in ICT is not widely available.*
- *The existing statistics stresses the prevailing issues in the field.*
- *Gender component is not included in ICT development, Information Society building concept papers, and in the broadband Internet national strategy in the Republic of Armenia.*
- *Although the government of Armenia has signed a number of international documents on ICT and Information Society building activities, supporting events for women's active participation in ICT are not available.*
- *There are no events and programs in the frame of Gender Policy Action Plans 2011-2014 concerning to building Information Society and ICT*
- *Not all ministries participate in developing Gender Policy programs (for example the RA Ministry of Transport and Communication).*

Not recognizing that girls and women are under-represented in ICT development policy and management, we limit the resources of our society. Women and girls not only have to look for a job but

also create and offer *job places* *and become key actors in building Information Society*. To fulfill it, we need the support of all stakeholders.

The aim of the research was to monitor the implementation of RA Gender Policy Concept Paper (in line with RA Gender Equality law), partially the inclusion of gender component (criteria) in ICT Development Policy, in Information Society building in Armenia and reform proposal on Women in ICT policy and action plan.

The recommendations based on the results of this research are compiled (page 24) and addressed to public & private sectors, NGO-s and international institutes for adequate support to enhance women's significant role in building Information Society.

In particular;

- *Support of YSU Center for Gender and Leadership Studies assist to submit the mentioned recommendations to GTG to discuss them in the context of 2016-2020 gender strategic plan elaboration.*
- *Support of ministries to include the recommendations in strategic concept papers and action plans. Namely round table discussion with relevant specialists from the Ministry of Economy, the Ministry of Transport and Communication, the Ministry of Labor and Social affairs.*
- *Consultation and financial support from International and donor organizations to implement the concept papers and action plans mentioned above points and enhance links between “women and ICT communities”. The example of it is USAID support to this project.*
- *Support of international organizations providing the best practices, guidelines and advocacy. (ITU, UN Women, UN organizations, EU, etc).*
- *Direct support by professional institutions, educational establishments, associations, and NGO-s to promote implementation of the concept papers and action plans in particular statistical data collecting and coordination (UITE, EIF, AUA, YSU, Women and Information Society, etc).*
- *Direct support by private vocational organizations to support the implementation of the concept papers and action plans mentioned points, namely promoting professional and financial assistance in competitions, teaching, and award granting events implementation (ICT companies).*

The grantees view the above mentioned research as a fundamental document and plan to organize meetings with the representatives of public and private sectors, NGO-s, and International institutions to realize the recommendations determined by the grant.

2. The Problem Description and The Purpose of The Research

The Government of Armenia has declared ICT sector as one of the priorities in the economy of the country due to its growing importance. In spite of ICT sector significant growth recorded in the last few years, surveys confirm that in regard to education, workforce, entrepreneurship as well as leadership, women's recruitment, retention, and participation remain unsatisfactory as women are under-represented at all ICT levels. It is a fact that to build an inclusive Information Society, a wide range of ICT specialists are required. Women's low participation in ICT is currently an issue. Despite the fact that women's employment in Armenia is 41.1%, the number is much lower in ICT sector. Majority of specialists employed by the Armenian ICT sector are males.

The most important determinant of a country's competitiveness is its human capital and talent; skills, education and productivity of its workforce. Women account for one-half of the potential talent. Closing gender gaps is therefore not only a matter of human rights and equity, but it is also economic productivity. Business leaders and policy-makers need to work together towards removing barriers to women's entry to the ICT workforce and putting in place practices and policies that will provide equal opportunities for rising to positions of leadership within the ICT sector.

There is a need for national strategies to ensure that women and men enjoy equal access to telecommunications/ICTs, and that telecommunications/ICTs can be used for social and economic empowerment of women and girls. As UN Secretary-General Ban Ki-moon has acknowledged, ***“Where women are educated and empowered, economies are more productive and strong. Where women are fully represented, societies are more peaceful and stable.”***

This research aimed to monitor the implementation of Gender Policy Concept Paper and Gender Policy Strategic Action Plan 2011-2014, namely by introducing gender criteria in ICT sphere, and by offering special programs and means to overcome gender imbalance and widen women's opportunities in ICT Development and Information Society building.

This research also aimed to initiate a dialogue among all stakeholders (public, private, academia, NGOs and international organizations) in Armenia in collaboration to increase significantly the number of girls and women in ICT with the goal to join forces for;

- Gender Policy Strategic Action Plan for implementing gender component inclusion in Information Society and ICT Development Policy,

- ICT Development, Information Society Policy with a gendered approach.

It means to act as a catalyst for lining up for a Gender Policy Strategic Action Plan for the ICT Development and Information Society Policy.

The main objectives were:

- Monitor the formulation and translation of gender equality objectives into performance indicators and targets in the ICT and IS Development Policy and its implementation.
- Monitor the integration of gender component into ICT programs in planning, budgeting and implementation processes.
- Identify room for improvement and suggest possible strategies to implement the Gender Policy action plan in ICT sphere.

Summarizing the above mentioned information, the aim of the research was to monitor the implementation of RA Gender Policy Concept Paper (in line with the RA Gender Equality law), partially the inclusion of gender component in ICT Development Policy, in Information Society building in Armenia and reform proposal on Women in ICT policy and action plan.

International documents and concept papers adopted by the Government of Armenia related to these issues served as the basis of the research. The documents are indicated below (in points- 2.1-2.4).

2.1 The World Summit on the Information Society and Women as Key Actors in the Information Society

The Industrial Era has turned into Information Society (E-Society) Era. In Geneva(2003) and in Tunis(2005), the World Summit on Information Society (WSIS) was held in two phases, where 176 UN member states, Armenia among them, assembled to declare “common desire and commitment to build a people-centered, inclusive and development-oriented Information Society, where everyone can benefit from the opportunities that Information and Communication Technologies (ICT) can offer.”

Tunis and Geneva World Summit final documents were;

- Geneva Declaration of Principles,
- Geneva Plan of Action,
- Tunis Commitment,
- Tunis Agenda for the Information Society

UN member states agreed that in order to build **Information Society**, where everyone can create, access, utilize, share information and knowledge, and improve quality of life:

- all stakeholders should work together;

- improve access to information and communication infrastructure and technologies;
- improve access to information and knowledge;
- build capacity;
- increase confidence and security in the use of ICTs;
- create an enabling environment at all levels;
- develop and widen ICT applications:
 - E-government,
 - E-business,
 - E-learning,
 - E-health,
 - E-employment,
 - E-environment,
 - E-agriculture,
 - E-science,
- foster and respect cultural diversity;
- recognize the role of the media;
- address the ethical dimensions of the Information Society;
- encourage international and regional cooperation.

These are the key principles to build an inclusive Information Society.

All the countries of the Summit, **and Armenia among them**, were obliged to elaborate national e-strategies (E-Society) before 2010 and agreed “that the development of ICTs provides enormous opportunities **for women, who should be** an integral part of, and **key actors, in the Information Society.**” They are committed to ensure that Information Society enhances women's empowerment and their full participation on equality basis in all spheres of society and in all decision-making processes. To this end, they should mainstream a gender equality perspective and use ICTs as a tool to that end (WSIS, Declaration of Principles). Gender-specific indicators on ICT use and needs should be developed, and measurable performance indicators should be identified to assess the impact of funded ICT projects on the lives of women and girls.

2.2 The Empowerment of Women through ICT, International Telecommunication Union Resolution 70

International Telecommunication Union (ITU) as a leading specialized agency in the United Nations for information and communication technologies (ICTs), encourages its 193 **member** countries to harness the catalytic role of ICTs in creating far-reaching opportunities for women and girls by eliminating gender disparities and empowering them to meet their goals. Resolution 70, (Rev. Guadalajara 2010, Busan 2014) adopted by ITU, calls upon all stakeholders to adopt policies and strategies promoting ICT opportunities for women and girls. The Ministry of Transport and Communication of the Republic of Armenia is **state member** of ITU since 1992.

2.3 E-Society, ICT Development Concept Papers of the RA and Women

Growing importance of information and communication technologies (ICT) industry urged the Government of Armenia to declare ICT as one of the priority sectors of the Armenian economy. In 2008, the RA Government adopted (2008-2018) IT Sector Development Concept Paper and Action Plan. In 2010, the Government adopted E-Society Formation Concept Paper (2010-2012). Later in 2011 the concept paper on “The Initial Strategy of the Formation of Innovation Economy of Armenia” was adopted which included 13 projects. “ICT and E-Society initiatives” was among them. The Government body responsible for the implementation of these strategies and overall IT industry development is the Ministry of Economy.

To build an inclusive Information Society in Armenia a wide range of ICT specialists are required. Although significant growth has been recorded in ICT sector in last few years, however surveys show that in regard to education and workforce, entrepreneurship, leadership, women's recruitment, retention, participation and advancement remain low in the ICT sector. Women are under-represented at all levels in the ICT sector. Women are especially under-represented in decision-making positions. Out of app. 360 ICT companies in Armenia (2012) less than 1.3% of companies top managers (CEO, General Directors, and Presidents) were women. Working in men dominated ICT sector, women technicians make up of 30 percent, 15 percent as ICT managers and only 1.3 percent of strategy and planning professionals. By recruiting more women in ICT, and Information Society today, especially in the times of global economic crisis, is not just a question of social justice, but a question of economic necessity, growth and competitiveness. Encouraging more women and girls to be integrated into the ICT sector is in line with the United Nations Millennium Development Goal which promotes gender equality and women's empowerment. Women's low motivation to enter the ICT sector currently represents loss of talent for industry and opportunity for females entering the job market. And this is not only women's issue. The pattern of under-representation of women in ICT and Information Society (IS) Development will continue if more steps are not taken to educate, support and encourage girls and their role models and finally to include gender component in ICT and IS Development policy.

2.4 Gender Policy Concept Paper and its Implementation in ICT sphere

In 2010, the Government of Armenia adopted Gender Policy Concept Paper and accordingly Gender Policy Strategic Action Plan for 2011-2015 concept paper was adopted in 2011. The Law on Ensuring Equal Rights and Equal Opportunities between Men and Women received the parliament's approval in May 2013.

According to the concept paper: "The Gender Policy will be implemented by introducing gender criteria in all spheres of **socio-economic** and political life, and by **developing special programs** and means to overcome gender imbalance and widen women's opportunities".

It means that "the Gender Policy will be implemented by introducing **gender criteria in ICT Development and Information Society Policies**, and by developing special programs and means to overcome gender imbalance and widen women's opportunities".

According to Article 8 of *the Law on Ensuring Equal Rights and Equal Opportunities between Men and Women*.

The main tendencies of state policy to ensure gender equality:

- To implement international principles and norms on gender equality issues as well as **international obligations** to be fulfilled by the Republic of Armenia.
- To engender practical legal and organizational **mechanisms** to ensure gender equality,
- To elaborate, implement and **finance** state programs which are addressed to gender equality...

Consequently international documents indicated in 2.1.1, 2.1.2 points should serve a basis for implementing gender policy in ICT.

3. The Methodology

The methodology for this study was based on data and information gathered from a variety of sources, gathered evidence, initiated dialogue, organized meetings, workshops, and as a result identified critical gaps and challenges, summarized recommendations and report. The research was carried out via quantitative and qualitative analyses.

The main activities and expected results are: research, meetings, discussions, workshops, report.

3.1 Data and Information Gathered from a Variety of Sources

In the frame of the research we have studied the following documents, including legislation, concept papers, policies, programs, and action plans:

- Resolution 70 (Rev. Busan 2014) Mainstreaming a gender perspective in ITU and promotion of gender equality and the empowerment of women through information and communication technologies, International Telecommunication Union
- World Summit Information Society Final documents 2003-2005:
 - Geneva Declaration of Principles,
 - Geneva Plan of Action,
 - Tunis Commitment,
 - Tunis Agenda for the Information Society
- (2008-2018) IT Sector Development Concept Paper of the RA
- E-Society Formation Concept Paper (2010-2012) of the RA
- The Initial Strategy of the Formation of Innovation Economy of Armenia Concept Paper (2012-2020)
- Gender Policy Concept Paper of the RA
- Republic of Armenia Gender Policy Strategic Action Plan for 2011-2015
- The Law on Ensuring Equal Rights and Equal Opportunities between Men and Women, 2013

In order to understand gender inclusion in ICT education, workforce, entrepreneurship, leadership and accessibility in rural areas of Armenia, we have looked several documents, such as:

- Armenian ICT Sector-State of Industry Report; 2011, 2012, 2013 years “Enterprise Incubator” Foundation
- IT Skills Assessment in Armenia, The World Bank June 2014
- Women Entrepreneurship Support Concept Paper of the RA, SME NDC, 2012
- Women Entrepreneurship Strategy in Armenia, Elaborated in the frame of the Asian Development Bank financed, PEM Consult, September 2013
- Report Assessment of needs for business development services among women entrepreneurs of Armenia, 2013

- RA Gender Policy Action Plans, 2011, 2012, 2013, 2014
- Armenian ICT Indicators, based on ITU requirements, The Ministry of Transport and Communication of the Republic of Armenia, 2011, 2012
- Armenian ICT Indicators, based on CIS requirements, The Ministry of Transport and Communication of the Republic of Armenia, 2011, 2012

3.2 Meetings and Dialogue Initiation

The following steps have been taken to initiate dialogue(s), meetings with local and international establishments.

- The Ministry of Labor and Social Affairs of the RA
- The Ministry of Economy of the RA
- The Ministry of Education and Science of the RA
- Standing committees of gender issues within regional administrations /marzpetarans/Lori, Tavush, Gexarqunik, Gyumri/
- SME DNC
- EIF
- ADB
- ITU
- UN Women
- UNDP
- Arizona State University
- ILO
- The Delegation of the European Union to Armenia

- The Ministry of Labor and Social Affairs

According to the Protocol of the RA Government Session of 11 February, 2010, No 5, the RA Minister of Labor and Social Affairs has been delegated the authority to coordinate the Gender Policy in the RA.

The RA Ministry of Labor and Social Affairs;

The Meeting was initiated with Armenuhi Tanashyan; the head of the “Women’s Issues” division.

During the meeting the following questions were discussed:

- How has The Gender Policy Action Plan been developed?
- Is there any confirmed budget for Gender Policy Action Plan with ICT component?
- How do they participate in the development of the Budget?
- What kind of “Women in ICT KPIs” exist and how are they organizing watchdog?
- With which Ministries did they collaborate in developing the Action Plan and Budget with ICT component?

- How Municipality and regional administrations participated in the development of the Action Plan and Budget, do they have their own budget?
- Which International Organizations supported in the Action Plan and ICT KPIs Development?
- Collaboration of the Ministry of Labor and Social Affairs with the Council on Women's Affairs by the Prime Minister on above mentioned issues.

- ***The RA Ministry of Economy;***

The Meeting was held with Artak Bagdasaryan, the head of Economic Development Policy Department.

- ***The Ra Ministry of Education and Science;***

The meeting was held with Marine Aghadjanyan, senior specialist of personnel development programs and monitoring department.

Meeting with UNDP representative;

- A meeting was organized with UNDP Program associate on Gender Equality, Armine Hovhannisyan and Democratic Governance Portfolio Analyst Alla Bakunts.

Meeting with Delegation of the European Union to Armenia representative;

-A meeting was organized with Irina Movsesyan, project manager, Delegation of the European Union to Armenia.

Meeting with Small and Medium Entrepreneurship Development National Centre;

- A meeting was organized with Small and Medium Entrepreneurship Development National Centre (SME DNC) Women MSME Development Project Coordinator Gohar Gabuzyan, who is responsible for women's entrepreneurship promotion issues.

Meetings in marzes/regions;

- Meetings were organized in the following marzes in Armenia (Lori, Shirak, Taush and Gegharkunik). **Tamara Grigoryan**, head specialist of information and work department in the Municipality of Vanadzor.

Karine Grigoryan, President of "Agate" center for women with special needs, member of Shirak regional committee of women's issues.

Local expert SME DNC of Taush and Gegharkunik Marzes.

Participation in DigiTech 2014, organized by UITE.

- In the frame of the grant proposal Ani Manukyan established links with Professor Kimberly Scott (The School of Social Transformation, Arizona State University) during her visit in ASU in the 2014 Spring Semester. Professor Scott is an Associate Professor at Arizona State University, founder and Executive Director of CompuGirls, and an awardee of STEM Access Champion of Change at the White House in 2014.

The aim of the cooperation was reviewing possible partnership in ICT education programs. The meetings gave the two sides a chance to compare and contrast the whole picture of girls' and women's involvement in ICT in the USA and Armenia and its further development.

Kimberly A. Scott sent a special video message to Armenian school-girls during the celebration of the International "Girls in ICT" Forum, 2014 at Ani Manukyan's request (see Annex 1).

3.3 Forum(s), Events, Communication Activities, and Surveys

One of our research objectives was to make women's issues and information society open for wider social spheres with the help of different information means. We are planning to include concrete recommendations in ICT activities with women and girls active participation, in RA Gender Policy Action Plan, as an output of our work. The following events are a few examples of activities which can be recommended:

- April 25, 2014 we initiated the Celebration on "Girls in ICT International Day" in Armenia for the third time. The Forum which was entitled "**Expand Horizons, Change Attitudes,**" took place at the American University of Armenia (AUA). The celebration is an excellent opportunity to encourage girls in Armenia to pursue careers in Information and Communication Technologies (ICT). The event was organized with the support of Ministry of Economy.
- (for more details see Annex 1. "Girls in ICT International Day" in Armenia).
- After the forum a Questionnaire was developed and distributed among participants, for school-girls, students and for instructors, teachers, in order to have their feedback, comments and suggestions. Surveys initiated as well among students of Arizona State University by Ani Manukyan, concerning their approaches ICT career, ICT role models, ICT events for encouraging school-girls to choose ICT profession.

The survey results of Arizona State University and Armenian school-girls have been compared. (see a sample of the questionnaire in Annex 3)

- Women entrepreneurs in Armenia, especially in rural areas, face specific challenges and practical constraints in contrast to their male counterparts. ICTs should be leveraged to help women entrepreneurs overcome these barriers, for example, constraints in access to finance, time poverty, restricted mobility, and lack of education and skills. To empower women entrepreneurs through ICT, this means action first of all in education.
“Digital Literacy for Women Entrepreneurs of Armenia” training courses organized for women entrepreneurs in rural area of Armenia. For more details see Annex 2.
- ITU co-organized with UN Women, the GEM-TECH Awards recognize the outstanding achievements of organizations and individuals in the area of gender equality and mainstreaming through information and communication technology (ICT). The launch of the awards in June of this year prompted over 360 nominations from over 70 countries around the world. The awards were open to leading women and men, as well as organizations working in the field of ICT and gender.
- “Women and Information Society” NGO was one of 37 finalists, selected across “ICT and Broadband strategies policies, framework that promote women’s digital empowerment” category for the inaugural GEM-TECH Awards 2014.
<http://www.itu.int/en/action/women/gem/Pages/award.aspx>

3.4 Proposals, International Activities

One of our research objectives was to initiate dialogue with stakeholders that shape government policies, implement them and influence their future directions. We planned to initiate a dialogue among The International Telecommunication Union (ITU), International Organizations in Armenia: USAID, UNDP, World Bank, European Commission, etc.

- As a result of our dialogue, we made proposals to ITU, which were included in their Report on the Public Consultation by the Council Working Group on ITU’s Strategic Plan for 2016-2019, 18 of February 2014, see more details in the following website: <http://www.itu.int/en/council/wg-sfp/Documents/Final%20report.pdf>, as well attached Quotation from page 2/7 “A contribution (Women and Information Society) specifically proposes that ITU:
“Assist members in the development of ICT national policies, strategies and plans with gender component, through sharing best practices and collecting, disseminating sex-disaggregated ICT statistics and measurement. Foster gender component inclusion into the ICT national programs in planning, budgeting, financial resource allocation and implementation processes”.

- Contributions has been done on Gender Issues in ICT to WSIS (World Summit on the information Society)+10 Statement on the Implementation on WSIS Outcomes & the **WSIS+10 Vision for WSIS Beyond 2015**. Contributions by Women and Information Society organization for Action lines 1, 2, 6 available in <http://www.itu.int/wsis/review/mpp/pages/consolidated-texts.html#statement>.

Narine Abazian participated in international High Level Dialogues, WSIS (World Summit on the information Society) +10. http://www.youtube.com/watch?v=t0fo_NJvEkk
This link is Interview with Narine Abazian, President “Women and Information Society” NGO, during WSIS+10 High level event, Geneva, 9-13 June 2014, organized by UN agencies

4. Research Outcomes

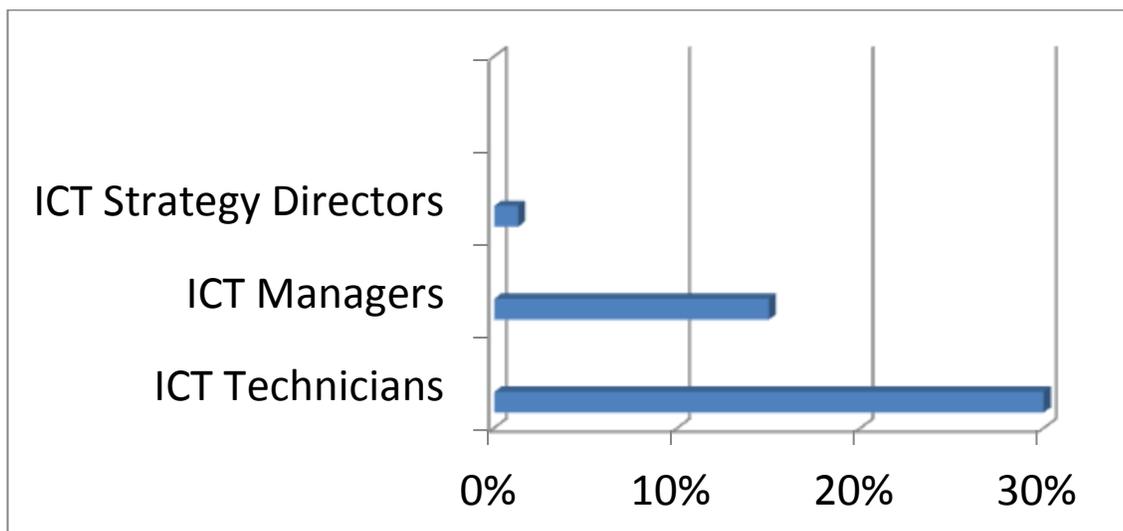
4.1 Gender- disaggregated ICT Indicators and Statistics in Workforce, Entrepreneurship, Education, Leadership, Accessibility in Rural areas

Statistics about women in ICT is not widely available. The existing statistics stresses the prevailing issues in the field.

- *Workforce*

Studies have shown that as in classic cases of vertical gender segregation is prevailing, with women strongly represented in lower level ICT occupations. Although women are making inroads into technical and senior professions, the study indicated a ‘feminization’ of lower level jobs.

Table1. Women and Girls in ICT



2012-2013 years statistics shows that:

- Only 33% of technical professionals are females. 1.3% of ICT companies have female directors (Source: Armenian ICT Sector-2012 State of Industry Report; “Enterprise Incubator” Foundation).
- The overwhelming part of the specialists employed in the Armenian ICT sector are males (69%). The number of female employees in the software and services sector has **decreased by 3%** as compared to 2012 (Source: Armenian ICT Sector- 2013 State of Industry Report; “Enterprise Incubator” Foundation).
- 27% of technical professionals are females in Telecommunication staff, 9% of technical professionals are females in Mobile Telecommunication staff, (Source: ICT Indicators of Armenia according to International Telecommunication Union, The Ministry of Transport and Communication of the Republic of Armenia, 2012)

Only 14% of women search for a job in ICT sector.

Table 2. Job hunters per sector

| <i>Sector</i> | <i>Female (%)</i> | <i>Male(%)</i> |
|---------------------------------------------------|-------------------|----------------|
| <i>Information and Communication Technologies</i> | <i>14</i> | <i>86</i> |
| <i>Sales</i> | <i>24</i> | <i>76</i> |
| <i>Banking</i> | <i>38</i> | <i>62</i> |
| <i>Finance / Accounting</i> | <i>58</i> | <i>42</i> |

| | | |
|--------------------------------------|-----------|-----------|
| <i>Marketing</i> | <i>53</i> | <i>47</i> |
| <i>Administrative /HR Management</i> | <i>74</i> | <i>26</i> |
| <i>HR Development</i> | <i>65</i> | <i>35</i> |
| <i>Construction / Real Estate</i> | <i>24</i> | <i>76</i> |
| <i>Higher Management</i> | <i>17</i> | <i>83</i> |
| <i>Production</i> | <i>16</i> | <i>84</i> |
| <i>Other</i> | <i>45</i> | |

Women’s low motivation to enter ICT sector currently represents loss of talent for industry and opportunity for females entering the job market. According to ICT Development concept paper it was planned that ICT workforce must reach 12,000 in 2013. Actual number in 2013 was 10,740. (Source: Armenian ICT Sector- 2013 State of Industry Report;“Enterprise Incubator” Foundation).

The planned number of ICT workforce according ICT Development concept paper (2008-2018) might be realistic in coming years if **more women are involved in ICT sector**.

In Armenia over 32% of population lives below the poverty line based on the World Bank report, 2013. Labor resources for people aged 15-75 show that women make up 1314 thousand of the population, from which only 41,1% of women are employed, whereas men make up 1076 thousand with 60 % of employment. As the average monthly salary in Armenia is app 140,000 AMD or app 300 USD (The National Statistical Service, 2013) it is not enough to support a family if only the husband is the breadwinner. Therefore women’s participation in the labor market is not a question of human rights, but the question of economy. The growing demand for a range of ICT skills present a unique window of opportunity to properly position girls and women in the highly paid ICT industry and provide them with the tools necessary to succeed. Today is the fact of reshaping our society and internationalization of job market, which means:

- Foreign company employment
- Domestic companies abroad
- Graduates working abroad
- Foreigner taking local job

Outsourcing and off-shoring are becoming the essential parts of ICT job market. In 2013, domestic market turnover was \$245.7 million and the exports \$133.4 million in Armenia.

With internationalization it is becoming more essential to develop ICT professionals. In order to develop globally competitive human resources, there is a need to build a pool of ICT professionals who have a breadth of technology know-how; good understanding of business and the capability to create intellectual property. With the objectives of having talented and globally competitive human resources, it is possible to drive the national economic competitiveness.

- ***Entrepreneurship***

According to Small and Medium Entrepreneurship Development National Centre of Armenia (SME DNC) report founders and managers of about 91% of enterprises registered in 2013 are men.

In general it can be said that in Armenia with a relatively high level of education of males and females, gender consideration is not a dominant priority. In Armenia there exists a lack of data on women involvement in economic development.

When it comes to the analysis of women as entrepreneurs the statistical data refers to 32% of women as registered owners of enterprises. This percentage does not, according to studies, represent the reality. It seems to be common practice that men often register their wives and daughters as owners due to the fact that they have either already registered another business themselves or to reduce the risks of debt payments due to the low income and financial reserves of the wife. The studies accordingly mention 13% of real female business. According to existing data women are mainly active as entrepreneurs in areas with low barriers of entry, where it is easy to duplicate businesses, often with a lack of long-term competitiveness, low specialization and within already saturated markets. (Women Entrepreneurship Strategy in Armenia, Elaborated in the frame of the Asian Development Bank financed, PEM Consult, September 2013)

Taking into account statistical data, according to which men-employers outnumber women-employers almost 8 times, the Women's Council under the Prime Minister offered to encourage business-women. Since 2012 «The best business-woman» award granting event has been initiated by the Prime Minister of the Republic of Armenia. However, not a single representative of ICT sector has been awarded this prize.

Women entrepreneurs in ICT have to face three main types of obstacles:

- Stereotypical cultures and opinions that associate innovation and technology with male issues.
- Economic obstacles, mainly difficulties in accessing financial instruments and credit.
- Lack of access to networks of innovators, potential clients, investors; lack of business training; women's perceptions about themselves as not enough self-confident and risk-taking.

Taking into consideration the fact that 75% of unemployed people are women, realization and establishment of business initiatives by women could cut down unemployment level. At the same time, there are less corruption cases in those communities and organizations where women participate in management and decision making.

The potential for women to lead businesses is therefore huge and women's self-employment, entrepreneurship and leadership in Information Society should be encouraged. It will also be important to create a new picture in society about the value of Women entrepreneurship for the development of the country.

With the aim to increase the share of women-led companies (women-led or women owned ICT companies) it is recommended to think about the creation telecentres in regional schools (after school classes in the evening time) or in digital libraries if any in regions. ICT teachers or operators of appropriate school can be potential owner or managers of ICT small companies.

- ***Education***

Despite having equally good –or better – grades as male counterparts in mathematics, science and technology subjects, girls are often actively discouraged by families, teachers and career advisors from pursuing further studies or careers in the ICT field.

According to “IT Skills Assessment in Armenia”, The World Bank June 2014 comprehensive research” the **majority of the students in IT-related faculties are male**”.

As mentioned in the research: “Also, the quantitative balance in place at present will face a dip in the upcoming several years, due to several factors, such as:

- military reforms, enforcing the mandatory military service for male citizens before acquiring higher education. This will result in decreased applicant number for 1-2 years with corresponding number of graduates in 4-5 years.
- low student enrollment during 2018-2019 because of low birth rates in 2001 and 2002.

In 2018/19 and 2019/20 the number of the graduates is again expected to diminish due to the recent military reform owing to which males are bound to have a 2-year military service deferring their higher education. As the majority of the students in IT-related faculties are male, the 2-year gap will be noticeable starting from 2018/19 academic year.”

Gender consideration is not a dominant priority in this research, instead to see that the growing demand for a range of ICT skills present a unique window of opportunity to properly position girls and women in highly paid ICT industry and provide them with the tools necessary to succeed in the sector and solve the quantitative balance. It should be noted that **the world's first computer programmer was a woman** Ada-Byron Lovelace (1815 - 1852).

- ***Leadership***

- 1.3% of ICT companies have female directors.

(Source: Armenian ICT Sector- 2012 State of Industry Report; “Enterprise Incubator” Foundation)

One of the reasons why the ICT sector continues to be generally perceived as a male-dominated industry is because most high-value and high-income jobs in this sector are occupied by men so there is significant room to improve the number of women holding leadership positions at board and senior management levels.

In spite of low number, we can mention ICT Companies female leaders, who can be excellent role models for our youth generation:

- Marie Lou Papazian, Managing Director of the Tumo Center for Creative Technologies
- Yeva Hyusyan, Director of Microsoft Armenia
- Sophie Mehrabyan, General Director of “Macadamian AR” CJSC
- Zhenia Azizyan, EIF Project Manager
- Amalya Yeghoyan, General Director of the Gyumri InformationTechnologies Center
- Gayane Stepanyan, Director of the Idram LLC
- Anna Engibaryan , Administrative Director of the Armenian Virtual College
- Mariam Davtyan , Director Regional Mobile Application Laboratory for ECA

- ***Accessibility in Rural areas***

Armenian women in rural areas are trapped in traditional family roles, without basic digital literacy. Correct ICT utilization means improving women’s lives. For female agricultural workers, it is producing more products with useful market information, for home-based women, it means becoming homepreneurs; finding opportunities to increase productivity and family income. For those on balance between family and career, it is working from home as homemakers and co-providers.

Community access points or telecentres are publicly accessible places, especially in marginalized or remote areas, where ICTs are not prevalent, where people can get help to access computers, the internet and other digital technologies that enable them to gather information, create, learn, and communicate with others.

In 2008, the Government of Armenia approved Information Technology Sector Development Concept Paper which in its Action Plan includes a part about telecentres; Equip & operate (at least 100) Telecenters and internet centers per year in selected locations with minimum 500 centers in 5 years (2008-2013), provide low-cost rural Internet access, stimulate e-literacy, e-learning, and other e-services.

World best practices show that most telecentre owners are women.

- Our research shows that information about implementation of 500 centers is limited. On 2012 the number of centers was 109, according to Armenian ICT Indicators, based on CIS requirements, The Ministry of Transport and Communication of the Republic of Armenia, 2011, 2012 Report

WSIS, Geneva Plan of Action stated “Policies that create a favorable climate for stability, predictability and fair competition at all levels should be developed and implemented in a manner that not only attracts more private investment for ICT infrastructure development but also enables **universal service** obligations to be met in areas where traditional market conditions fail to work. In disadvantaged areas, the establishment of ICT public access points in places such as post offices, schools, libraries and archives, can provide effective means for ensuring universal access to the infrastructure and services of the Information Society.”

Via telecenters it is possible to find solutions to empower community women with information access, entrepreneurship and employable digital skills, opportunities for higher schooling, and membership in a helping global digital community.

With the aim to increase the share of women-led companies (women-led or women owned ICT companies) it is recommended to think about the creation telecentres in regional schools (after school classes in the evening time) or in digital libraries if any in regions. ICT teachers or operators of appropriate school can be potential owner or managers of ICT small companies.

Women can be key actors in building Information Society, via raising importance of making broadband policy universal and explain that by connecting schools with broadband, we connect youth as well as others in the community to knowledge and information, leading to employment and social and economic development.

This way we can assist implementation broadband advocacy target, calling for gender equality in access to broadband.

As the research showed, gender consideration is not a dominant priority. As long as ICT data collections did not see market value in obtaining gender disaggregated statistics, the data will not be widely available. Only few sources collect gender-disaggregated ICT data.

We need more gender statistics in ICTs on;

- By Information Society Action Lines
- Research
- Participation in telecommunication and ICT decision making
- Innovation
- Access to Broadband

- Life Long Learning
 - Participation in ICT projects,
- And with special emphasis on rural and remote areas.

4.2 Gender Component Inclusion in ICT Development and Information Society Building Policies

Gender component is not included in ICT development, Information Society building concept papers, and in the broadband Internet national strategy in the Republic of Armenia.

Although the government of Armenia has signed a number of international documents on ICT and Information Society building activities, supporting events for women's active participation in ICT are not available.

4.3 Special Programs and Measures in Gender Policy 2011-2014 Action Plans to Overcome Gender Imbalance in ICT

There are no events and programs in the frame of Gender Policy Action Plans 2011-2014 concerning Information Society building and ICT sector development. In the frame of the research, the researchers found out that the only relevant component is in Culture and Public Information Sector, which is a small element in the definition of Information Society.

4.4 Multi-stakeholder Partnership in Building Gender Policy and Action Plans with ICT Component

According to the RA government decree N5 (18.02.2010) "On the approval of the Gender Policy Concept Paper" the ministries have been assigned to prepare action plans for gender policy implementation in line with their areas. However, The Ministry of Transport and Communication is not among the ministries. We also highlight the alignment and coordination between the existing government organizations, international, donors and business organizations about common direction and fields of support.

As we mentioned in point 2.2, The Ministry of Transport and Communication of the Republic of Armenia has been a state member of International Telecommunication Union since 1992. But in fact the Government body responsible for the implementation of ICT, IS strategies and overall IT industry development is the Ministry of Economy.

Therefore alignment and coordination are necessary between the existing government organizations, international, donors and business organizations in building Gender Policy and Action Plans with ICT component.

In the long-term ICT development and Information Society Building Strategy with Gender Component it is desirable to strengthen cooperation between public authorities and the private sector, academia, unions and associations, International Organizations, NGOs through the promotion of multi-stakeholder partnerships, by linking Gender and ICT Communities.

4.5 Gender Sensitive ICT programs in Planning, Budgeting and Implementation Processes

Although the government of Armenia has signed a number of international documents on ICT and Information Society building activities (see points 2.1, 2.2), supporting events for women's active participation in ICT are not available.

Although the Law on Ensuring Equal Rights and Equal Opportunities between Men and Women foresees the following actions;

- To implement international principles and norms on gender equality issues as well as international obligations to be fulfilled by the Republic of Armenia.*
- To engender practical legal and organizational mechanisms to ensure gender equality,*
- To elaborate, implement and finance state programs which are addressed to gender equality...*

However;

The research shows that Gender sensitive ICT programs and relevant mechanisms do not exist. There is no financial allocation for Gender sensitive ICT programs.

By joining UN Women proposal to Vision for WSIS Beyond 2015, we as well propose Creation of an Action Line on “Women's Empowerment and Full Engagement in the Information Society”

5. Recommendations

Recommendations in Concept papers, programs, measures, and events for ICT and Information (electronic) Society as well as women's issues should include;

- The development of ICTs provides enormous opportunities for women, who should be an integral part of, and **key actors, in the Information Society.***
- Create an Action Line on “Women's Empowerment and Full Engagement in the Information Society” (joining UN Women proposal to Draft Vision for WSIS Beyond 2015)*

- *Develop gender sensitive and specific indicators to measure digital gap in ICT accessibility (as well as broadband Internet in urban and rural areas), workforce, leadership, entrepreneurship, education and in all action lines of Information Society with special emphasis on rural and remote areas.*
- *Define short-term, middle and long-term indicators and monitor their implementation.*
- *Include the indicators in ICT programs planning, budgeting, and implementation processes.*
- *Dedicate resources, investments and attention to women's empowerment within the information society.*
- *Collect gender-sensitive data in ICT in a systematic basis. Analyze, define targets and use them in formulating and implementing national ICT plans.*
- *Monitoring progress via annual reporting on women's empowerment through ICT.*

Elaborate action plans and programs for women's empowerment using ICT;

- *Digital literacy for women of various target groups, with special emphasis on remote rural regions.*
- *ICT accessibility for women and girls, with special emphasis on rural and remote areas to grant them opportunities for life-long learning, for business and for their possible contributions to economic recovery.*
- *Celebrate "Girls in ICT" International Day every year(in April on the 4th day of the 4th week)*
- *Organize "Women's empowerment through ICT" enhancing award granting annual event.*
- *Bring recognitions to women leaders in Science and Technology who make a difference.*
- *Organize ICT women role models visit to rural regions (with special emphasis on rural and remote areas) to meet young girls to encourage them to enter ICT sector.*
- *Allocate nominal scholarship for the best girl students in ICT -related faculties.*
- *Define a set of principles for ICT companies to take into serious consideration for hiring, assessment and encouragement of women in ICT sector.*
- *Create multi stakeholder platform to organize joint discussions, events and surveys to address women's issues.*

- *Enhance investments and encourage start up business women in ICT, women owners for telecentres, which will dramatically increase the number of women Entrepreneurs.*
- *Support creation of public accessibility centers run by women.*
- *Awareness creation and documentation of success stories from successful existing female ICT entrepreneurs and start-ups.*

Long-term ICT development and Information Society Building Strategy with Gender Component is desirable which strengthens cooperation between public authorities and the private sector, academia, unions and associations, International Organizations, NGOs through the promotion of multi stakeholder partnerships, by linking Gender and ICT Communities.

In particular;

- *Support of YSU Center for Gender and Leadership Studies assist to submit the mentioned recommendations to GTG to discuss them in the context of 2016-2020 gender strategic plan elaboration.*
- *Support of ministries to include the recommendations in strategic concept papers and action plans. Namely round table discussion with relevant specialists from the Ministry of Economy, the Ministry of Transport and Communication, the Ministry of Labor and Social affairs.*
- *Consultation and financial support from International and donor organizations to implement the concept papers and action plans mentioned above points and enhance links between “women and ICT communities”. The example of it is USAID support to this project.*
- *Support of international organizations providing the best practices, guidelines and advocacy. (ITU, UN Women, UN organizations, EU, etc).*
- *Direct support by professional institutions, educational establishments, associations, and NGO-s to promote development and implementation of the concept papers and action plans mentioned points, in particular statistical data collecting, consulting and coordination (UITE, EIF, AUA, YSU, Women and Information Society, etc).*
- *Direct support by private vocational organizations to support the implementation of the concept papers and action plans mentioned points, namely promoting professional and financial assistance in competitions, teaching, and award granting events implementation (ICT companies).*

6. Conclusion

Armenia needs more skillful specialists including women and girls in ICT sector.

Not recognizing that girls and women are under-represented in ICT development, policy, management, we limit the resources of our society. Women and girls not only have to access, to look for a job, but also create and offer *job places* **and become key actors in building Information Society.** To fulfill it, we need the support of all stakeholders.

Business leaders and policy-makers need to work together towards removing barriers to women's entry to the ICT workforce and putting in place practices and policies that will provide equal opportunities for rising to positions of leadership within the ICT sector.

In the long-term ICT development and Information Society Building Strategy with Gender Component it is desirable to strengthening cooperation between public authorities and the private sector, academia, unions and associations, International Organizations, NGOs through the promotion of multi stakeholder partnerships by linking Gender and ICT Communities.

7. Abbreviation list and References

Abbreviation list

| | |
|----------------|---------------------------------------------------------------------------------|
| <i>ADB</i> | <i>Asian Development Bank</i> |
| <i>CGLS</i> | <i>Center for Gender and Leadership Studies</i> |
| <i>EIF</i> | <i>Enterprise Incubator Foundation</i> |
| <i>ICT</i> | <i>Information and Communication Technologies</i> |
| <i>ILO</i> | <i>International Labour Organization</i> |
| <i>IS</i> | <i>Information Society</i> |
| <i>IT</i> | <i>Information Technologies</i> |
| <i>ITU</i> | <i>International Telecommunication Union</i> |
| <i>KPIs</i> | <i>Key Performance Indicators</i> |
| <i>NGO</i> | <i>Non Governmental Organization</i> |
| <i>RA</i> | <i>Republic of Armenia</i> |
| <i>SME DNC</i> | <i>Small and Medium Entrepreneurship Development National Centre of Armenia</i> |
| <i>STEM</i> | <i>Science Technologies Engineering Mathematics</i> |
| <i>UITE</i> | <i>Union of Information Technology Enterprises</i> |
| <i>UN</i> | <i>United Nations</i> |
| <i>UNDP</i> | <i>United Nations Development Program</i> |
| <i>USAID</i> | <i>United States Agency for International Development</i> |
| <i>WSIS</i> | <i>World Summit on the Information Society</i> |
| <i>YSU</i> | <i>Yerevan State University</i> |

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Annex 1. “Girls in ICT International Day” in Armenia

International Girls in ICT Day was celebrated for the third time in Armenia on April 25, 2014. The celebration is an excellent opportunity to encourage girls in Armenia to pursue careers in Information and Communication Technologies (ICT). A forum, entitled **“Expand Horizons, Change Attitudes,”** took place on April 25, 2014 at the American University of Armenia (AUA).

There were three objectives of the “Girls in ICT” forum: (a) expand horizons, changing attitudes; (b) changing practice and (c) increasing engagement of girls in ICT sector, to promote technology as an exciting career choice for girls and women in Armenia.

The event was livestreamed for Yerevan, Armenian regions, Cisco Academy in London with school-girls participation and Cisco Academy in Minsk. This year the forum was available via livestreaming for school-aged girls, students and teachers across Armenia for the second time with the support of Cisco - WebEx, the worldwide leader company in networking. 47 secondary schools, colleges and ICT institutions joined the Forum.

Successful female leaders from UNDP, TUMO Center for Creative Technologies, Microsoft Innovation Center Armenia, Armenian Virtual College, Gyumri Information Technologies Center, Idram LLC, Cisco Networking Academy, Regional Mobile Application Laboratory, American University of Armenia, Physmath School, Armenian-Indian Center for Excellence in ICT and other institutions shared their knowledge and experience, as well their ideas to success in ICT.

A special video message to Armenian school-girls was sent by Kimberly A. Scott from Arizona State University. Professor Scott is an Associate Professor at Arizona State University, founder and Executive Director of CompuGirls, and an awardee of STEM Access Champion of Change at the White House in 2014.

The third year forum organizing by the initiation of “Women and Information Society” NGO with information support of International Telecommunication Union and Ministry of Economy of the Republic of Armenia

During three years the partners were:

- American University of Armenia,
- Cisco, the worldwide leader in networking,
- USAID Enterprise Development & Market Competitiveness Project
- Enterprise Incubator Foundation,
- Arm-Indian Center for Excellence,
- Regional Mobile Application Laboratory for ECA,
- Microsoft Innovation Center Armenia,
- Rosterecom, (GNC-ALFA CJSC, Armenian telecommunication Operator)
- VivaCell, leading mobile operator in Armenia
- National Center of Educational Technologies of Armenia
- Idram, Internet Payment System Operator

After forum the Questionnaire have been developed and distributed among participants, for school-girls, students and for instructors, teachers, in order to have their feedback, comments and suggestions. The evaluation of celebration Girls in ICT Day in Armenia shows that:

- More than 98 percent of the girls assess Girls' Day as „good“ or „very good“.
- 52 percent got to know professions in technology, sciences, ICT which they find interesting.
- 41 percent would like to gather specific information on these professions during an internship.
- One third of the girls polled would like to work in the ICT area. More and more young women who participated in Girls' Day want to start their future jobs in a profession that is related to technology.
- Has been lot of suggestions, such as:
 - Each year to celebrate Girls in ICT Day
 - Assisting to provide more reliable connection in rural areas of Armenia
 - To organize trainings in Marzes, rural areas
 - Meeting with famous ICT women
 - The celebration and competition organize in Marzes
 - Speakers visits to schools
 - To declare Ada Lovelace award among school-girls during year

Surveys initiated as well among students of Arizona State University by Ani Manukyan, concerning to their approaches ICT career, ICT role models, ICT events for encouraging school-girls to choose ICT profession.

The survey results of Arizona State University have been compared with Armenian school-girls answers. The sample of the Questionnaire is attached at the end of this report.

For more details see the following sites: <https://www.facebook.com/WomenandIS>, <http://girlsinict.org/ru/node/3909>. The second link is provided by The International Telecommunication Union (ITU).

Annex 2. Digital Literacy for Women Entrepreneurs in Armenia

ICTs are emerging as increasingly valuable business tools for women entrepreneurs. Women entrepreneurs are offered new opportunities by ICTs to start and grow businesses. Through new as well as traditional forms of ICTs, women entrepreneurs are reaching out to customers, becoming more efficient and building their businesses in ways they could not do before. It is crucial to ensure that

women entrepreneurs, especially in rural areas, are in a position to benefit from these technologies and can participate in the expanding information economy. ICTs can improve the process of collection, analysis and dissemination of information among potential buyers and sellers of agricultural products.

“Digital Literacy for Women Entrepreneurs of Armenia” training courses, supported by ADB, organized for women entrepreneurs in rural areas of Armenia.

For more details see the following sites:

<http://www.adb.org/sites/default/files/project-document/151626/45230-001-tacr-03.pdf>

Questionnaire

On Celebration of "Girls in ICT" International Day

Age: 22

Specialty: *Civil engineering*

BA/MA: BA

University: *ASU*

State: *AZ*

Date: *April 21st*

1 How have new Information and Communication Technologies (ICT) changed your life?

Use smartphones and touch screens to make things easier

2 What does mobile phone mean to you?

EVERYTHING!

3 What is the function/role of the Internet in your life?

The main source of information

4 Did you study an ICT subject (computer studies) at school?

Yes

No

If you answered yes, what did you like most about the subject(s)?

5. Who influenced your career selection?

Parents

Teachers

Role models, please specify

Friends

Other, please specify

6. Have you ever considered ICT as a career option?

Yes

No

7. Do you have any suggestions how to make ICT subjects and careers more appealing?

Making things attractive to the new generations.

8. Do you find it helpful having role models speak about their experiences in ICT?

Sure, it is

9. Do you know of someone (women), who is involved in ICT in some way that you could see as a role model?

No!

10. How could celebration of "Girls in ICT day" be helpful for career selection and development?

That's an attractive event for all females.

11. What element(s) of the event would you propose?

- Robotics Games Development Essay Writing Competition
- Multimedia Training Session Role models speak
- TV shows Discussion on Facebook or on website Prizes
- Biomedical Visits to ICT companies other, please specify

12. Other comments:

Engineering / Nanotechnology

Thank you for your participation