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STATISTICS ON WOMEN AND MEN AND ICT: THE ECE REGION

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Introduction

Information Communication Technologies (ICTs) are emerging as a key tool through which women and men can increase their economic prosperity and livelihood. ICTs are also quickly changing the ways that all people live. But the dynamics of ICT access, process and impact on women and men can be different. In order for both women and men to optimize the benefits that can be gained from this new technology and to minimize the tendency toward a “gender divide” within the “digital divide”, the gender dimensions of ICT must be examined and the gender factor mainstreamed within ICT strategy and policymaking. To accomplish this, there is a need for sex-disaggregated ICT data and gender-sensitive ICT methodology and analysis.

The importance of considering gender concerns as they relate to ICTs was emphasized at the 47th Session of the United Nations Commission on the Status of Women (March 2003).¹ The issue of making available the benefits of new technologies was also one of the Millennium Development Goals² and the relevance of producing gender-related indicators to monitor this goal was stressed at the recent meeting on MDG indicators.³ The extent to which the gender component of ICT can be introduced into the policy platform of the World Summit for Information Society (December 2003, Geneva) will also be crucial to addressing the unique welfare and needs of women in this rapidly forward-moving and increasingly exclusion-rife area.

The availability of sex-disaggregated ICT data is a needed support to facilitate gender-sensitive policymaking in ICT. Data collection on ICT in general is still in an initial phase worldwide, and the integration of the gender component in the national data process early on is crucial for building foundations on which to ensure that women and men today and in the future will have a full share of optimal access, use and benefits from ICTs.

This report will examine the ECE regional situation with regard to statistics on ICT and gender. Part I presents the results of the ECE Assessment on the Status of ICT and Gender Statistics and highlights of its findings. Part II will provide a profile of ICT access and use by women and men in the ECE region, in particular the EU and Ukraine. Part III will address major data gaps and measurement problems faced in measuring the gender dimension of ICTs. Finally, Part IV will propose recommendations to advance ICT and gender statistics and to strengthen NSO's capacity for data collection in this area.

¹ Commission on the Status of Women, *Report of the 47th Session* (March 2003), United Nations Document E/2003/27-E/CN.6/2003/12.

² *Road map towards the implementation of the United Nations Millennium Declaration*, United Nations Document A/56/326 (http://unstats.un.org/unsd/mi/mi_goals.asp).

³ Report of the Inter-agency and Expert Meeting on MDG indicators, Geneva, 10-13 November 2003.

I. The Availability of Statistics on Gender and ICT in the ECE Region

a. Background

The Assessment on ICT and Gender Statistics⁴ conducted by the UNECE Statistical Division through questionnaires sent to ECE national statistical offices (NSOs) in the spring of 2003 emerged as part of an effort to “take stock” of the state of official statistics with regard to gender in the area of ICT. This area was identified as one of the “emerging policy issues” for “potential new indicators” for the UNECE/UNDP Gender Statistics Website at the UNECE Work Session on Gender Statistics (September 2002) and by the UNECE/UNDP Task Force on the Gender Statistics Website (May 2001 and September 2002).⁵

As the UNECE Statistical Division focuses primarily on the collection of and methodological work for **official statistics**, the Assessment puts particular attention on data collected by national producers of official statistics, in particular, NSOs. However, countries were also welcome to comment on the availability of relevant non-official ICT data and partners in order to provide a more complete picture of the data available and its quality. It should be noted that apart from official statistics, there are a number of notable non-official ICT statistical sources which have served in providing important and useful ICT data in the absence of available official statistics and until NSOs were able to mobilize their efforts to conduct regularized, official ICT surveys.⁶ Annex 1 provides an overview of sources used to compile data on ICT.

The ICT and Gender Statistics Assessment Questionnaire is comprised of twenty questions gathering information on NSO data collection activities in the following areas: 1) sex-disaggregated ICT data and years for which data is available 2) types of sex-disaggregated ICT data/indicators collected by NSOs⁷ 3) primary sources used to collect sex-disaggregated ICT data 4) reasons for not collecting sex-disaggregated ICT data 5) future plans/work in gender and ICT data collection 6) other important work, studies or partners in gender and ICT statistics apart from NSOs 7) methodology used in gender and ICT official statistics and 8) dissemination tools for gender and ICT official data/statistics.

⁴ It should be noted that the information collected in this Survey was qualitative in nature focusing on obtaining an overview of the NSOs statistical activities in ICT and gender statistics rather than on the actual collection of this data.

⁵ UNECE/UNDP Gender Statistics Website: <http://www.unece.org/stats/gender/web/>

⁶ Since the early 1990s, for example, Eurobarometer sponsored by the European Commission has conducted flash surveys on ICT usage in households among its member states. There have also been notable private sector initiatives to measure ICT usage and impacts. Another example is the Sibis project, the result of collaboration between large technology companies, recently completed a large scale study aimed at producing new methods and data on ICT measurement. For information on the Sibis project, refer to www.sibis-eu.org

⁷ Countries were asked to report whether they sex-disaggregated ICT data in the following areas: household/individual use of ICTs (number of women using computers, technology used to access ICTs, location where computer or internet accessed, frequency of computer and internet access, purpose of internet use), ICT enterprise/firms and ICT sector (number of women-led ICT enterprises, number of women working in the ICT industry/sector), education and training on ICT (number of women graduates in computer science, IT and related fields).

The Assessment Questionnaire was transmitted to 49 national statistical offices via the Gender Statistics Focal Points (GSFP) in NSOs in June 2003.⁸ A Russian version of the survey was transmitted to twelve CIS countries one week later.

As of November 2003, of the 49 questionnaires disseminated to UNECE countries, 42 responses had been received or a response rate of approximately 86%. Annex 2 lists the countries to which the questionnaire was sent. The seven countries from which we have yet to receive a response are: Azerbaijan, Belgium, Slovak Republic, Sweden, Tajikistan, Turkey and the United States.

The following is a preliminary examination of the information for the Assessment received from the 42 reporting UNECE countries.

b. Overview of Official ICT Data Collection among UNECE Countries

Although the survey was directed primarily at collecting information on the gender dimension of ICT statistical collection capacity, the results also provided a useful picture of the developmental stage at which many of these countries are with regard to ICT statistics collection overall. Annex 3 summarizes countries' data collection activity for both sex-disaggregated ICT statistics and non-sex-disaggregated ICT statistics. Among the 42 reporting countries, 29 collect data on ICT and in 19 of these the data are sex-disaggregated.

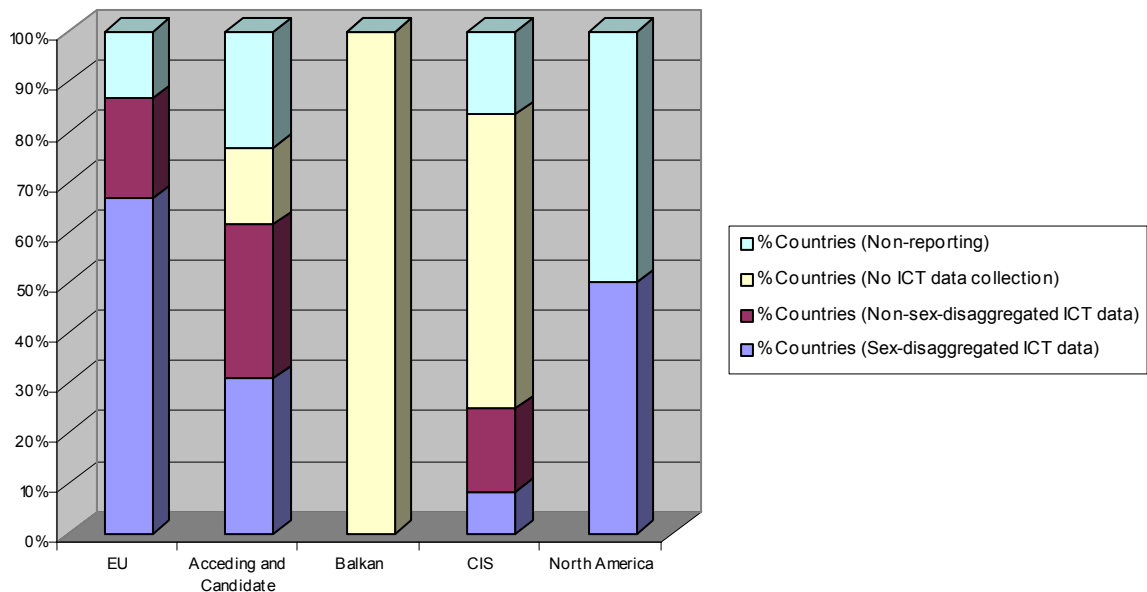
There is a wide range in the amount of data collected in the 19 countries reporting the availability of sex-disaggregated data. It goes from countries with highly developed ICT data collection systems such as Finland whose collection includes extensive sources on new technologies to countries like Cyprus whose ICT data collection consists of one ICT-related question added to its regular Labour Force Survey and for example the Russian Federation, which collects ICT data only on education.

13 of the 42 reporting NSOs had not started any official ICT data collection, though two of them indicated other ways to collect ICT statistics despite constraints on official resources. Of these 13 countries, 11 were CIS and Balkan countries. The remaining countries with no collection of ICT data were Bulgaria and Slovenia, though Bulgaria reported it would be initiating collection this year.

The survey results show there are very clear sub-regional distinctions among countries of the ECE in terms of stages of development with regard to ICT and sex-disaggregated statistics (see Chart 1 and Annex 3).

⁸ The Assessment Questionnaire was not sent to the following countries as they did not have a Gender Statistics Focal Point: Andorra, Malta, Liechtenstein, Luxembourg, Monaco, San Marino.

Chart 1: Official ICT Data Collection in Selected Regions, 2003*



* On basis of results from UNECE Assessment on the Status of ICT and Gender Statistics (see Annex for country listings)

Among the countries that reported the availability of a wide range of statistics on gender and ICT are Finland, Canada, Iceland, Israel, Norway, Switzerland, and the majority of EU countries⁹. Accessing countries can be found at different stages. Five of them reported the collection of non-sex-disaggregated ICT data (Estonia, Hungary, Latvia, Poland, Romania) and three reported sex-disaggregated data (Cyprus, Czech Republic¹⁰, Lithuania¹¹). Two countries do not collect ICT data (Bulgaria, Slovenia).

Although Hungary and Slovenia do not have an official ICT collection or sex-disaggregated ICT collection, they have reported the collection of ICT data outside the NSO. Contracted organizations or private institutions were used to collect data to compensate for capacity and resource constraints in their NSO¹². Although they are not official statistics and would need to be held to integrity standards, the efforts served to provide some initial data for analysis.

Of the CIS and Balkan countries, only Ukraine, Armenia and Kyrgyzstan, have an official collection of ICT statistics. The Russian Federation reported the availability of data on the

⁹ Of the 15 EU countries, 10 countries reported sex-disaggregated data, 2 did not respond to the assessment questionnaire and 3 (Greece, Ireland, and Spain) did not collect sex-disaggregated data.

¹⁰ The Czech Republic took part in the 2002 Eurostat Pilot Survey.

¹¹ Lithuania developed a household survey on ICT usage on the basis of the OECD/Eurostat survey model.

¹² It is important, however, to establish appropriate standards and methodologies especially when data is collected and developed outside of official statistics. Non-official statistics should serve as an initial research activity until NSOs are able to incorporate the data collection into their operation.

number of female students in the IT field.¹³ Armenia and Kyrgyzstan did not report detailed information on what types of ICT data they collect. Ukraine is the only country in the region, which, through an ILO sponsored survey, collected sex-disaggregated ICT statistics. Many of the reporting countries cited financial and human resource constraints as the reason for no collection¹⁴.

c. Data sources for ICT and Gender Statistics

The Assessment showed that NSOs collect sex-disaggregated ICT statistics from a wide range of sources. The primary source from which this type of data are collected are **household surveys**. Since these surveys focus on individual use and characteristics they usually provided the bulk of the available sex-disaggregated ICT data among ECE countries. ICT data available through household surveys are primarily on access to, use of and knowledge of ICTs by women and men, but in more specialized ICT surveys can be expanded to issues such as frequency of use, location of access and types of activities and purposes.

If more developed countries have been able to conduct specialized surveys following for example the OECD and Eurostat models for enterprises and households¹⁵, countries with more limited resources such as Cyprus and Ukraine, have added ICTs modules in on-going household surveys.

In addition to ICT specialized household surveys, different types of surveys have been used to collect sex-disaggregated ICT data. Finland, for example, used, time-use surveys and leisure surveys to reveal insights on gender and ICT dynamics¹⁶. Household budget surveys and population surveys were reported by Poland and Switzerland as important sources for the collection of ICT statistics¹⁷. Canada reported the use of social surveys, population surveys/census, and labour force surveys.

Access to ICTs is also an important element in women and men's entrepreneurship. Though specific surveys on women and men's enterprises do not exist in many countries, some countries do conduct surveys on women's enterprises, which provide insight on the ICT

¹³ In Annex 3, as Russia collects education statistics only, it is in the category of no official ICT collection.

¹⁴ Information on the status of these countries in relation to the development status of their knowledge-based economy can be found in UNECE Country Assessment Reports on Readiness for the Knowledge-Based Economy, 2002. <http://www.unece.org/ie/enterp/assesreport.htm>.

¹⁵ Samples of the OECD model surveys can be found in the annex of the publication, *Measuring the Information Economy 2002*, OECD (see: www.oecd.org/sti/measuring-infoeconomy)

¹⁶ Finland has also conducted innovative surveys on the nature and number of individuals' email communications with each other, family and friends to explore peoples' communication styles and patterns using new technologies and developments ie. peer-to-peer instant messaging. For more information see: *A Great Migration to the Information Society: Patterns of ICT diffusion in Finland in 1996-2002*, National Statistical Office of Finland. Juha Nurmela, Lea Parjo and Marko Ylitalo, Statistics Finland.

¹⁷ Switzerland also reported to work with an external institution to collect data (see WEMF: www.wemf.ch).

dynamic in these businesses. The US, for example, runs annual surveys on women's businesses.¹⁸

Some countries reported the use of **enterprise surveys** to collect ICT statistics, but not sex-disaggregated. The majority of countries have worked first to develop ICT data collection capacity in enterprise use of ICTs. The priority on developing data collection on enterprise ICT use and the ICT business sector before household use of ICTs has been a common pattern among countries.

Other types of surveys were mentioned by few countries as source of ICT data. These are: internet commerce surveys (Finland), e-commerce surveys (Canada), industry/manufacturing surveys and research and development surveys.

Administrative records have also been reported as an important source of ICT data for women and men. Examples are Finland that used administrative records and employment registers as sources for ICT statistics and The Netherlands that it is planning to produce more statistical data on personal characteristics of entrepreneurs and employees in enterprises through the use of linkages in business and tax registers.

d. Types of data collected

Data on **ICT access and use** among women and men forms a basic foundation indicator for monitoring the status of an information society for most countries. This data includes indicators such as access to computers in households, the workplace and/or other places, access to the internet in households, the workplace or other places ie. internet café, the frequency of computer use, frequency of internet use, etc. Sex-disaggregated ICT data of this type of indicators is available for nearly all of the EU countries, the Czech Republic, Lithuania, Cyprus, Ukraine, Canada, Switzerland, Israel, Iceland and Norway.

Sex-disaggregated data on the types of **activities and purposes** for which ICTs are used is available in the majority of the EU countries, Canada, Switzerland, Israel, Iceland and Norway. This may include data on types of activities for which the internet is used such as the use of the internet to buy goods and services and the types of goods and services bought online. Sex-disaggregated data for this indicator is available primarily for.

The majority of EU countries, Canada, Switzerland, Israel, Iceland and Norway have also data on **attitudes toward ICTs** and **barriers to ICT use**. This data can be useful for countries, which are seeking to jumpstart their information society or countries with more developed information societies seeking to discern barriers to further growth.

Statistics on **employment and education of women and men in the ICT sector** are the indicators most available in countries. Data on employment in the ICT sector was specifically

¹⁸ For information on the US Survey of Women-Owned Business Enterprises (SWOBE), refer to www.census.gov/csd/mwb

reported by Denmark, Finland, the UK, Cyprus, the Czech Republic, and Ukraine and data on education was collected by nearly all the EU countries, Cyprus, the Czech Republic, Estonia, Hungary, Romania and the Russian Federation.

Sex-disaggregated ICT data on **women-led enterprise businesses**, were reported by only a few countries, namely Canada. France also reported collecting data on the **number of women managers in the ICT sector**.

A number of new types of gender-relevant ICT indicators are emerging from the assessment. Finland has done collection of sex-disaggregated ICT data to monitor and measure **ICTs impact on human relationship** and the nature of women and men's **communication styles**. It has also conducted time use surveys to reveal women and men's preferences with regard to the use of **ICTs for leisure** purposes.

II. A profile of the access and use of ICT by women and men in the ECE region: the case of the EU and Ukraine

European Union: Community Survey on ICT Usage in Households

The first round of sex-disaggregated ICT official statistics collection in the European Union occurred in 2002 with the Eurostat Pilot Survey on ICT Usage in Households¹⁹. The collection of ICT statistics became a priority with the adoption of the first 2002 E-Europe Action Plan, an economic policy initiative making ICTs a central driver of growth in the EU.²⁰ Data collection was needed to facilitate and benchmark implementation of this plan.

The introduction of official ICT surveys has been a multi-stage process launched in 2001 with the pilot of the Eurostat **Enterprise** Survey on ICT Usage. It was succeeded in 2002 with the launch of the Eurostat Pilot **Household** Survey on ICT Usage. Both surveys are based on OECD model surveys on ICT usage among enterprises and among households.²¹ Data from the first household pilot round in 2002 was provided on a voluntary basis from EU members. The first full collection from all EU members is to be completed in 2003, though this data is still under processing. The survey collects information on the following areas: access to ICT technologies, the use of computers and internet including location and frequency of use, the purpose and nature of activities on the internet, and internet commerce details including activities and barriers²².

¹⁹ Background on survey and model questionnaire can be found at <http://www.voorburg.scb.se/Voorburg-presentation.doc>

²⁰ See: http://europa.eu.int/information_society/eeurope/2005/index_en.htm.

²¹ Samples of the OECD model surveys can be found in the annex of the publication, *Measuring the Information Economy 2002*, OECD (see: www.oecd.org/sti/measuring-infoeconomy)

²² Apart from the disaggregation by sex, data can also be tabulated by other social demographic variables such as age class, education level, employment situation, type of household and location.

With all EU members under gentleman's agreement to participate in the Eurostat ICT collections²³, official sex-disaggregated ICT statistics collection will have been completed in at least two thirds of the EU countries by this year. Greece, Ireland and Spain appear to be the only EU countries not collecting sex-disaggregated ICT statistics, primarily due to resource constraints and technical difficulties though some reported they are working toward sex-disaggregation.

Table 1 below reports the EU averaged gender gaps, calculated as the difference between % of men and % of women, it suggests that women in the EU countries²⁴ use computers and the internet with less frequency and regularity than men.

Table 1: Gender Gaps on ICT Access and Use in the European Union*

Indicator	Gender gap (%)
COMPUTER USE	
Use of a computer in the last 3 months	6.1
Use of a computer daily at home in the last 3 months	8.1
Use of a computer at least once a week at home in the last 3 months	1.6
Use of a computer daily at work in the last 3 months	4.5
Use of a computer weekly at work in the last 3 months	1.0
INTERNET ACCESS	
Access to internet daily at home in the last 3 months	6.1
Access to internet at least once a week at home in the last 3 months	3.1
Access to internet daily at work in the last 3 months	5.1
Access to internet at least once a week at work in the last 3 months	1.1

Source: 2002 Eurostat Pilot Survey on ICT Usage in Households

* Refers to EU countries and Czech Republic for which data was available.

Charts 2 and 3 show the percentages of women and men who reported to **have used a computer** in the last three months and daily for each country. As can be seen from a comparison of the two charts, women's computer use appears less prevalent at higher levels of intensity of use.

²³ Eurostat Progress Report to the Voorburg Group

²⁴ Reporting countries for which data was available from the 2002 Eurostat Pilot Household Survey on ICT Usage: Denmark, Germany, Greece, Spain, Italy, Luxembourg, Austria, Portugal, Finland, Sweden, UK, Czech Republic.

The percentage of people who declared to have used a computer in the last three months varies among EU countries and the Czech Republic (for which data is available) with a lowest 24% in Greece and a highest 76% in Sweden. Looking at gender differences, there are on average 6.1% less women using a computer every three months than men, with high gender differences in Italy, Austria and Luxembourg where the percentages of women are 11%, 10% and 9% less of men respectively.

The gender divide increases when a daily use of a computer at home is considered. If in the UK for example there is almost parity in the use of computers in the long period of time (last three months), the more intensive use (daily) shows a percentage of men (23%) which is higher than that of women (16%). On average, 8.1% less women than men use a computer daily at home. The highest differences are reported in the Nordic countries, Denmark, Sweden, and Finland, for whom the gender gap is 15%, 11%, and 10% respectively. In the same countries the differences of percentages between men and women were respectively, 7%, 4%, and 2% when the computer use was considered in the last three months.

Chart 2: % of women and men who used a computer in the last 3 months
source: Eurostat, selected data from 2002 Eurostat Pilot Survey on ICT Usage in Households

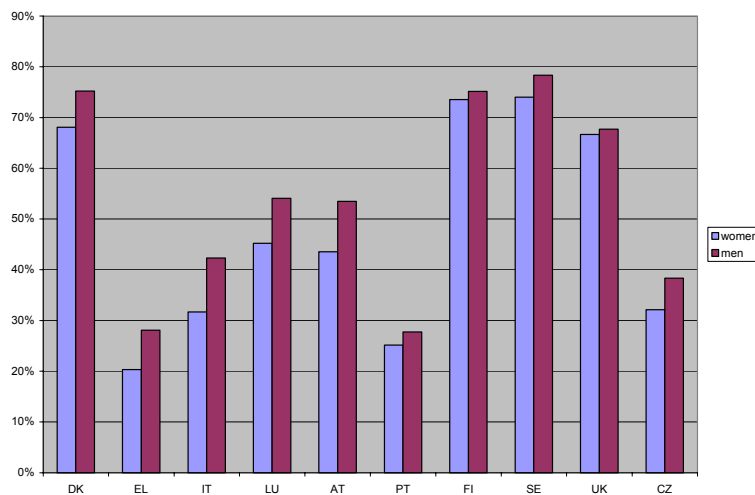
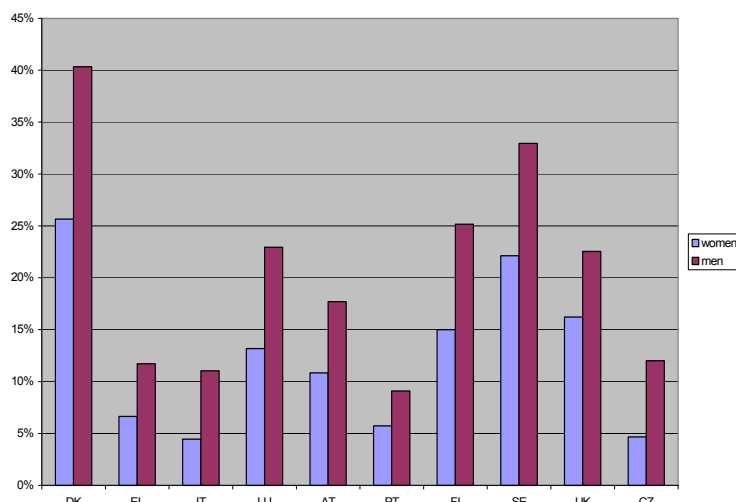


Chart 3: % of women and men who used a computer daily at home in the last 3 months
source: Eurostat, selected data from 2002 Eurostat Pilot Survey on ICT Usage in Households



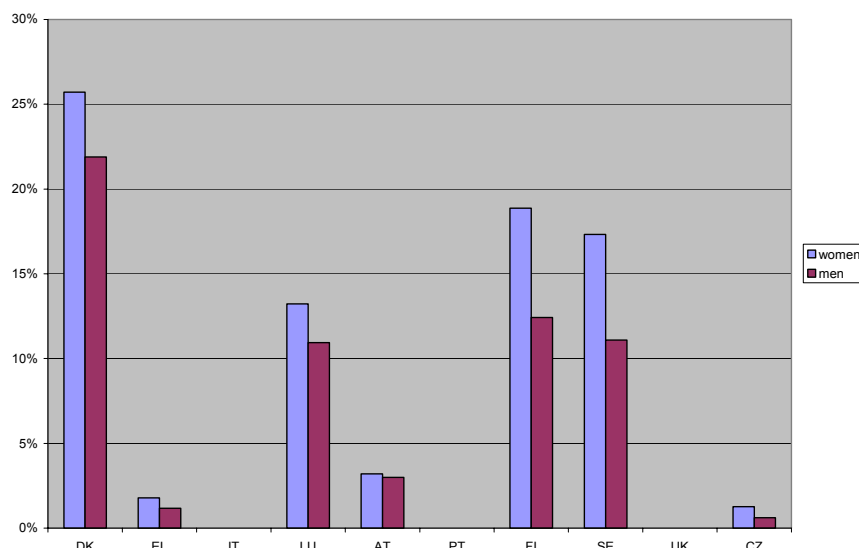
There are no significant differences among women and men in the weekly use of a computer at home. On average there is a slightly higher percentage of men (18.6%) who use a computer weekly compared with the percentage of women (16.6%). In some countries, namely, the Nordic countries (Denmark, Finland, and Sweden), the percentage of weekly use is high if compared with other countries for both men and women with a slightly higher percentages of men ranging from 22 to 30 percent.

Similar patterns could be seen in the data on **internet usage** in both home and workplace where women seem to use internet less frequently than men. Data on the percentage of women and men who accessed the internet daily at home showed on average a difference of 6.1%. This difference fell to 3.1% for weekly home usage and to a negative difference of 1.2% for monthly use. The same occurred in the workplace where the average difference between the percentage of women and men for daily internet use stood at 5.1%, but progressively fell to 1.1% for weekly workplace use reaching almost parity for monthly use.

The survey also included questions on **purposes of internet use**. The uses were categorized in terms of: (1) communication purposes ie. sending e-mail (2) information research and on-line services (3) purchases of goods and services, banking (4) interaction with public authorities. The percentage of men using the internet for these purposes exceeded in all countries that of women for nearly all of the listed areas. Areas of internet usage that appeared to be particularly male-dominated are communications, watching web-television, games and music, reading newspapers, and purchasing. In Sweden, for example, the prevalence of women who use the internet to listen radio or watch web-television (8%) is less than half of the prevalence of men (19%) and the prevalence of men who use internet for games and music is considerably higher, 40% compared with the same prevalence for women, 27%. In Denmark the gender difference is consistent in the use of internet to read newspapers. Only 19% of women use internet for this purpose compared with the 32% of men. There is one area where the trend is reversed: the use of internet to use services related

to health. Chart 4 shows that in countries such as Denmark, Luxembourg, Finland and Sweden, the percentage of women who used the internet for this purpose were 4%, 2%, 6% and 6% respectively more than men.

Chart 4: % women and men using internet for health-related services in the last 3 months
source: Eurostat, selected data from 2002 Eurostat Pilot Survey on ICT Usage in Households



As information collected on the purposes and uses of ICT and internet are circumscribed by the specific types of uses specified in the survey, it is possible there are other uses significant to women and/or men but for which no data is being collected. Being able to identify and capture effectively the important uses and purposes of ICT access in a survey will be key to its ability to collect the relevant data and to conveying a realistic picture of the situation of ICT users, both women and men, in the region.

Ukraine: Use and Knowledge of Computers by Women and Men

Among the CIS countries which responded to the UNECE Assessment Survey on ICT and Gender Statistics, Ukraine is the only country reporting to collect official sex-disaggregated ICT data on use and knowledge of computers. This is done through a household survey known as People's Security Surveys (PSSs) carried out since 2001 in collaboration with ILO and UNDP.

The survey which questions people on a wide range of subjects, included two questions on ICT access and usage.²⁵ In addition to sex, the NSO collects data on variables such as age and employment status security.

²⁵ The following two questions were asked in the People's Security Survey (PSS) in Ukraine: (1) Do you know how to use a computer? (2) Do you own or have regular access to a computer at work and/or at home?

The data show that the total percentage of Ukraine's population knowing how to use a computer is between 29-30%, with near parity between women and men. At the middle-age classes, for 30-39 and 40-49, women appeared to be better off than men in terms of computer knowledge. However, at the younger ages 15-19 and 20-29, the reverse was evident with young men tending to be stronger in computer knowledge than young women.

In the employment sectors, the percentage of women who reported to know how to use a computer was higher than men by about 6% in the manufacturing sector, the agricultural sector and the services sector. Men working in the non-production sector, on the other hand, were more numerous by 6% than women.

Some of these trends are mirrored in women and men's access to computers. At 5.3% of the population, 4.9% women and 5.9 % men, not many Ukrainians had access to a computer at home. By contrast, there were larger numbers of Ukrainians (14% of the population) who had access to a computer at work. Here, the percentage of women (15.4%) was more than that of men (12.1%). A total 34% of the student population had computer access, of which the percentages of men (36%) were higher than for women (32%).

Not surprisingly, computer access in the employment sectors corresponded closely to computer knowledge trends in these sectors. The percentages of women with access to a computer were high in the manufacturing, agricultural and services sectors where women were also strong in knowledge.

It should be noted that even with the existence of sex-disaggregated ICT data, the use and interpretation of this data to provide an accurate picture of the gender dimension in the information society development of transitional economies - such as that of the Ukraine - can be difficult due to underlying dynamics which may be difficult to detect from the immediate statistics.

Bearing in mind the issues examined in the section on measurement problems and the so called "back-office" dynamic observed in a number of countries, it would be important - in examining the numbers of women and men who have access to computers - to consider whether the skills being employed are at the high skill-level or the low-skill level. Before concluding that women in Ukraine are enjoying greater ICT benefits than men in some areas, there is a need to undertake further examination into the type and nature of computer access, use, and knowledge.

III. MAJOR DATA GAPS AND MEASUREMENT PROBLEMS

There are some glaring gaps in data availability on ICT and gender within the ECE region, in particular in basic computer knowledge, access and use in some of the Central and East European, Balkan and CIS countries. A large number of countries in Central and East Europe are still making the transition from ICT usage data by household to ICT usage data by sex. The Eurostat ICT Household Survey provides a good range of sex-disaggregated ICT data for EU countries and will eventually be fully extended to acceding countries in the near future.

However, little has been done in South East Europe and CIS countries where it is hard to make accurate speculations on the intensity of the gender divide in the use, knowledge, and access to new technologies.

Although the development of standards and methodologies in the collection of data in the use and access of ICTs has made a lot of progress in the last few years, there is still much to achieve. The OECD model for enterprises and households is a very good starting point in the development of regular data collection by national statistical offices, however, ICT specialized data collections are still difficult to be implemented in countries with limited statistical resources. More efforts should be directed to develop short ad-hoc modules to be included in on-going surveys and to assure that the availability of technologies such as computer, internet connection, mobile phones are always considered in questions related to the living conditions of households. This is an appealing approach for countries with limited statistical resources. However, it should be borne in mind that general questions cannot provide detailed information, and the gender dimension may not be detected.

The importance of the ICT sector has pushed in some countries the collection of data on the ICT-related economy. However, national policy makers are starting only now to recognize the need to have information on the use, access and knowledge of new technologies by different sub-population groups. How the benefits of new technologies affect the different groups of populations is still not clear in many countries and it is not always clear how to define the areas that need to be investigated further.

While a good number of sex-disaggregated ICT indicators can accurately capture the reality of the gender situation with regard to ICTs, it has also increasingly becoming apparent that in a number of cases they do not and, in fact, may provide a misleading picture of the actual gender dynamic. How survey questions are formulated and selected and how gender sensitive ICT indicators are targeted are crucial to effectively capturing the gender element.

There is the need to examine in more depth these underlying dynamics and look more at issues such as level of computer skills and knowledge, frequency of ICT use and purposes of use. As reported by UNCTAD in its 2002 E-Commerce and Development Report²⁶, the use of technologies by women is often confined to “back office” services where women are predominant in routine, low-skilled jobs while men are predominant in specialized jobs. Indicators such as computer access and use often do not reveal ICT trends and dynamics reinforcing negative age-old stereotypes of women.²⁷ The report went on to forward that indicators on how women use the internet and the skill set a woman possesses were more appropriate and effective ICT indicators for determining women’s status in the information society.

With the increasing focus on e-business or electronic business, it would also be important to examine for gender factors and dynamics in e-business activities and processes. Teleworking

²⁶ UNCTAD E-Commerce and Development Report 2002, p.69

²⁷ UNCTAD E-Commerce and Development Report 2002, p.72

may also increase the use of technologies by women; however, this may not always be a benefit for women when it perpetuates old stereotypes of women's work as being home-based work.

The availability of ICT data on women and men's entrepreneurship is also very weak. While there has been much work on improving data on enterprises and entrepreneurship, developing ways to identify women and men's business and collect data on them has been a slower process. Women running businesses face unique challenges and may not have access to resources which may be available to men. The phenomena has been observed with acquiring financing and with acquiring access to other key resources. It is important to have data enabling the examination of whether this is the case with women entrepreneurs acquiring ICTs as well.

IV. PROPOSALS AND RECOMMENDATIONS

One of the strongest challenges to ensuring adequate data availability on ICT and gender in the ECE region is sustaining public and policy support for the need for ICT and gender statistics. It has been popular to dismiss the "gender divide" in the "digital divide" as a problem for developing countries and not a problem for more developed countries.

The evolution of the new technologies should be geared toward optimally meeting the needs of both women and men and for this reason alone, an awareness of gender differences with regard to ICT use is useful. In order to understand what are the dynamics that could optimise the ICT benefits and gains to a society, and particularly to empower women in their participation in the labour market, it is important that gender-sensitive data be collected.

Improvements in the collection and dissemination of gender-sensitive data at national and international level could include the following:

- **The development of a framework for gender-sensitive ICT indicators.**

This would help to translate policy needs into statistics able to benchmark the current situation and measure trends over time. This framework would need to be drawn from a close examination of the underlying dynamics operating in ICTs impact on women and men's unique conditions and circumstances. The framework should include indicators that are measurable in official statistics. The selected indicators if not currently available would help national statistical offices to identify priority areas where the collection of ICT sex-disaggregated data could be improved and included in the regular statistical production of a country.

The development of a framework for gender-sensitive ICT indicators is needed to build a statistical foundation for indicators distinguishing the unique ways that ICTs are taken up and impact on women and men. As existent ICT indicators are on a general level and the consideration of gender specific purposes or uses have not been a

key factor in the selection of questions for surveys, a core set of gender-sensitive ICT indicators is recommended.

In developing such a framework, differences between countries must also be considered. It is possible that the same model may not apply to all countries, though it is important to identify similarities and establish a baseline for the work and core set of indicators.

Areas that should be included in this framework are:

- availability, access and use of various types of ICTs at home and at work
- knowledge and skills of ICT
- education in the ICT sector, including access and use of technologies in schools
- employment in ICT field, including training and use of technologies in the workplace
- gender dimension of e-business
- gender dimension of e-commerce
- ICTs in women's entrepreneurship
- **Development of gender-sensitive ICT modules**

As was made clear in the responses of NSOs to the UNECE Assessment Survey, full ICT specialized household data collections are difficult to implement in countries with limited statistical resources. More efforts should be made to develop short ad-hoc modules to be included in on-going surveys ie. household surveys, that ensure that ICT data with respect to social conditions and factors are collected.²⁸

To existent surveys on women's entrepreneurship such as that of the US, an added module on ICT use could also provide a great deal of information on ICT access and use among women's businesses. Experiences and best practices among countries practicing this method of collecting ICT data should be reviewed and shared, providing feedback for future recommendations in the development of the modules.

- **Beyond sex-disaggregated ICT data**

Developing gender sensitive ICT data does not refer only to making sex-disaggregated ICT data available. The availability of sex-disaggregated ICT data is important to being able to provide gender sensitive ICT indicators. But building a system to collect gender sensitive ICT data is also a matter of identifying areas which have special

²⁸ In household surveys there is often a household questionnaire and an individual questionnaire. Household questionnaires often include questions related to availability of appliances (TV, telephone, etc.). These type of questionnaire should be updated to include technologies such as computer, internet access and mobile phones.

bearing on women's or men's lives. Locating these areas and identifying ICT indicators which draw out these gender and societal links is useful and important.

The identification of women and men's "niche" areas is important, especially as they could have policy implications helping to improve the welfare of women and men. The trend of women's strong use of the internet for health purposes which became apparent in the Eurostat household survey data could be categorized as a woman's "niche" area. The identification of such trends and "niche" areas could serve to flag potential areas for policy action. They signal to policymakers that policies, for example, on the use of public internet sites to target women in the provision of medical services and health information could be quite useful and needed.

- **Gender-sensitive education indicators with regard to ICTs**

Data on women's education in IT was among the most widely reported ICT data type by countries in the ECE Assessment Survey. There has been discussion of the increasing need to "change women's perceptions of IT programs [so that the IT field may] consequently attract more girls and women to this field."²⁹ An IT curriculum emphasizing aspects such as the role of technology in the social context, focusing on the use of IT skills on community projects and the connection of technology with "real-world" problems has been found to be more appealing to women IT students than the conventional IT curriculum.³⁰

The promotion of such an IT education with a women's slant could be supported through the development of unique gender-sensitive IT education indicators reflecting the importance of the social context of the new technologies.

²⁹ UNCTAD 2002 E-Commerce and Development Report, p.74.

³⁰ UNCTAD 2002 E-Commerce and Development Report, p.74.

Annex 1 Sources of ICT data

There are four main sources used to collect data on ICT use, access and demand: (1) through ICT technology and infrastructure players such as telecommunications operators or internet service providers (ISPs) (2) through enterprise surveys (3) through household surveys and (4) web-based surveys.

Telecommunications operators and ISPs

One of the sources from which countries can collect data on ICT access and use - such as on standard access lines, integrated services digital networks (ISDNs) and mobile phone networks - are telecommunications operators. Surveys on ISPs for example can provide information on internet subscribers (business or household), type of technology used (dial up, cable, WAP, etc.) and length of connection and data compiled from the largest telecommunications operators can provide information on internet subscription by country¹. These sources look at the provider side and do not reveal information on the actual use of the technology.

Enterprise surveys

Through enterprise surveys, national statistical offices (NSOs) are able to collect information in areas ranging from number of employees using a computer to the value of e-commerce an enterprise engaged in over the last year. Depending on an NSOs resource capacity, a country may conduct a full ICT-specific enterprise survey which focuses exclusively on an enterprise's ICT dimensions or may include an ICT module on on-going enterprise surveys. OECD has developed a model survey on enterprise ICT usage that can be adapted to countries' unique needs¹.

Household surveys

Household surveys on ICT usage provide sex-disaggregated data on individuals' use of ICTs. Through these surveys, NSOs collect information in areas ranging from how frequently a person used a computer to why he/she used the internet for and what types of items he/she bought through the internet. Like the enterprise survey, a country may choose to conduct a full ICT-specific household survey or to add a module on ICT to an existing survey. The OECD has also developed a model survey on household ICT usage. Household surveys are also a good tool to collect data on ICT-related education enrolments and achievements, training, and employment. In addition to being sex-disaggregated, surveys can provide data broken down by other social demographic variables such as age, education level, employment situation, and type of household.¹

Web-based Surveys

These surveys are run through the World Wide Web when users are asked to fill out an on-line form. Data are collected by national agencies or market research companies¹. Since the user's profile is often included in this type of surveys, data can be analysed by gender, however, the process of collection and dissemination of the data does not follow standard procedures and the results are used only for preliminary research purposes.

Each of the above data sources has its strengths and drawbacks. Data provided by telecommunications operators and ISPs and in general, by enterprise surveys are not sex-disaggregated. These data can provide aggregate estimates and is useful especially for countries for which no other data is available. But its ability to provide information on individual ICT user patterns is limited. Enterprise surveys provide useful information on the extent to which and how enterprises use ICTs. But enterprise surveys (focusing on ICT or not) are currently designed to reveal little about the unique factors and conditions faced by women and men entrepreneurs and the characteristics of women and men's enterprises or women and men's ICT usage preferences. Household ICT usage surveys comprise the best source where sex-disaggregated data can be obtained and women's patterns of ICT use examined. As they are based on direct responses from interviewees rather than estimations, they can help assure that an accurate picture of the situation of women and men with regard to ICTs is being produced. They can help discern the unique patterns of ICT use characterizing women and men. Familiarity with these patterns can also serve to show women and men entrepreneurs how they can best make use of ICTs to optimise their businesses. Web-based surveys can provide sex-disaggregated data. However, they are not usually based on standard methodologies although, for some countries, they may be the only source of sex-disaggregated data. In addition to household surveys, administrative records can provide information on the gender patterns of enrolment in ICT field studies or employment in ICT sectors, but the quality of the data provided depends on the coverage and content of

Annex 2

UNECE Assessment Survey on ICT and Gender Statistics

Countries to which survey questionnaire was sent

(countries which did not respond are italicized)

European Union

Austria
Belgium
Denmark
Finland
France
Germany
Greece
Ireland
Italy
Luxembourg
Netherlands
Portugal
Spain
Sweden
UK

Acceding and Candidate Countries

Bulgaria
Cyprus
Czech Republic
Estonia
Hungary
Latvia
Lithuania
Poland
Romania
Slovak Republic
Slovenia
Turkey

Balkan Countries

Albania
Croatia
FYR of Macedonia
Serbia and Montenegro

CIS Countries

Azerbaijan
Armenia
Belarus
Georgia
Kazakhstan

Kyrgyzstan
Republic of Moldova
Russian Federation
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

Other Countries

Canada
Iceland
Israel
Norway
Switzerland
United States

ECE countries to which Assessment Questionnaire was not sent due to absence of a Gender Statistics Focal Point: Andorra, Malta, Liechtenstein, Luxembourg, Monaco, San Marino

Annex 3: Official Collection of Sex-disaggregated ICT Statistics, 2003¹
UNECE Member Countries

Country	No ICT Statistics ²	ICT Statistics (non-sex disaggregated data only) ³	ICT Statistics (sex-disaggregated data available) ⁴
European Union			
Austria			x
Denmark			x
Finland			x
France (5)			x
Germany			x
Greece (6)		x	
Ireland (7)		x	
Italy			x
Luxembourg			x
Netherlands (8)			x
Portugal			x
Spain (9)		x	
UK			x
Acceding & Candidate Countries			
Bulgaria (10)	x		
Cyprus (11)			x
Czech Republic (12)			x
Estonia (13)		x	
Hungary (14)		x	
Latvia (15)		x	
Lithuania			x
Poland (16)		x	
Romania (17)		x	
Slovenia (18)	x		
Balkan Countries			
Albania	x		
Croatia	x		
FYR of Macedonia	x		
Serbia & Montenegro	x		
CIS Countries			
Armenia		x	
Belarus	x		
Georgia	x		
Kazakhstan	x		
Kyrgyzstan		x	
Republic of Moldova	x		
Russian Federation (19)	x		
Turkmenistan	x		
Ukraine (20)			x
Uzbekistan	x		

Other Countries			
Canada			x
Iceland			x
Israel			x
Norway			x
Switzerland			x

Notes for Annex 3

1 Table includes only countries from which responses were received to the UNECE Assessment Survey on ICT and Gender Statistics (2003). A list of all countries to which the Assessment Survey was sent is included in the Annex. Responses to the questionnaire were not received from the following countries: Azerbaijan, Belgium, Slovak Republic, Sweden, Tajikistan, Turkey, US. The Table transmits information as was reported by the member states in the questionnaire responses to the UNECE through the Gender Statistics Focal Points.
2 Countries which reported ICT education data only were put in this category.
3 As the Assessment Survey was focused primarily on sex-disaggregated statistics, not all countries reported whether they conducted an ICT enterprise survey which collects non-sex-disaggregated data.
4 Please note that the amount of sex-disaggregated data available among reporting countries varied widely. A number of countries conducted full ICT-specific household surveys of which the data was sex-disaggregated. Other countries obtained sex-disaggregated ICT data from the addition of one or two ICT-specific questions to an existent household survey.
5 France collects sex-disaggregated ICT data. It does not participate in the Eurostat Household Survey on ICT Usage.
6 Greece is working toward collecting sex-disaggregated ICT data.
7 Ireland is to start the Eurostat Household Survey on ICT Usage this year, though sex-disaggregation may not be done.
8 The Netherlands collects sex-disaggregated ICT data. Its participation in the Eurostat ICT Household Survey was unclear.
9 Spain does not sex-disaggregate its ICT data.
10 Bulgaria reported it was launching a new household survey in 2003 in which the collection of some sex-disaggregated ICT data was planned. Sex-disaggregation is anticipated for the 2004 survey.
11 Cyprus plans to participate in the 2004 Eurostat ICT Household Survey.
12 The Czech Republic has participated in the Eurostat ICT Household Survey since 2002.
13 ICT data in Estonia is currently only available by household. Some sex-disaggregated ICT data is available from an earlier household pilot.
14 Hungary collects ICT statistics by household, enterprise and

public sector.
15 Latvia plans to participate in the 2004 Eurostat ICT Household Survey
16 ICT data in Poland is currently only available by household. Poland plans to participate in the 2004 Eurostat ICT Household Survey.
17 ICT data in Romania is currently only available by household.
18 Slovenia does not have official collection of ICT statistics. However, it reports some sex-disaggregated ICT data is available through ICT household surveys conducted through contracted organizations. Slovenia plans to participate in the 2004 Eurostat ICT Household Survey.
19 The Russian Federation collects sex-disaggregated ICT data on IT education.
20 Ukraine collects sex-disaggregated ICT data through two computer use questions in a national household survey.