E-inclusion and social welfare in Spain: a gender perspective

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ABSTRACT
The available data show that men use the Internet in greater proportions and with more intensity than women. However, women tend to perform more *socially efficient* activities than men, as if the traditional division of work were translated to the virtual world, In other words, some women's use of the Internet (mainly related to health, education or family matters) seems to have a greater degree of functionality in terms of social wellbeing. On the contrary, men outperform women in leisure (sports, games, newspapers) and consumption. In this context, this paper discusses the possible advantages of incorporating women into the Internet community due to the different ways in which they use Internet compared to men. Following the statement made by Huyer and Westholm (2000) that "without data, there is no visibility and, without visibility, there is not priority"; our findings are based on the analysis of statistical data. From this source we built our own quantitative indicators that bring to light gender differences in terms of access and Internet use.

Keywords
Gender, ICT, e-inclusion, digital divide, social welfare

INTRODUCTION
The diffusion of information and communication technology (ICT) is an essential component of social and economic activity in the European Union and OECD countries. It contributes to reinforcing the differences in productivity, economic competitiveness, and social welfare between countries (OECD, 2003). The use of computers and the Internet by the population constitutes one of the components considered to be essential to the adaptation of human capital to the requirements of the knowledge economy.

The existing studies and empirical evidence emphasize the positive effects of knowing how to operate computers and the Internet (Brynin et al., 2004; Korup and Szydlik, 2005; Rogers, 2001). If factors exist that slow the acceptance of these innovations by the public and businesses, economic efficiency, employment, and both social and individual welfare will be affected by this lack of adaptation of human capital.

The analysis of gender discrimination in regards to the diffusion of ICT is very strategic because women represent more than half of the entire world population (therefore, they do not represent just an *unfavorable collective*, as it is very often considered). It is also strategic because accessing the Internet provides opportunities, but at the same time it results in barriers and inequality between individuals. The diversity of women makes it easier to detect social, institutional and cultural barriers that contradict the existing opportunities.

Previous studies have detected social differences in the use of ICTs as well as gender gaps in the use of Internet (Bimber, 2000; DiMaggio and Hargittai, 2001; DiMaggio et al., 2004). It seems evident that not all Internet uses have the same social and economic effects. While some are oriented to leisure, commercial and consumer activities, others are more functional and are associated with activities that may contribute to promoting higher levels of human capital and social welfare. It seems crucial then to investigate the *quality* of the different uses of the Internet (Liff and Shepherd, 2004). This task will allow for differentiating those uses purely guided by the market forces from others more orientated towards providing real services to people.

Despite the fact that men use the Internet more frequently and intensely, women tend to perform more functional activities related to health, education and training, or family matters. Men seem to prefer leisure activities (games, reading sports newspapers) or downloading software (OECD, 2007, p. 36). These uses are important, but it is not clear that they substantially contribute to generating human and social capital or competitiveness. These differences in use are attributed to the distinct activity choices made by

girls (communication and expression) and boys (technology), more than any other type of inequality (OECD, 2007, p. 41). It seems as if the sexual divisions of labor that exist in society were transferred to the virtual reality (Kennedy, Wellman and Klement, 2003, p. 84). In accordance with the available information, the increase in the number of male users would benefit by generating an increase in the areas of consumption and leisure. However, an increase in the number of female users would generate very positive effects from the point of view of economic and social welfare because of the ways in which they use the Internet.

Unfortunately, women encounter greater difficulties than men when attempting to incorporate themselves effectively into the Internet community, thus establishing the gender digital divide. The concept of *digital divide* refers to the structure of opportunities, cultural attitudes and skills related to the use of ICT. These factors are influenced by age, education, employment and economic resources. The gender digital divide reaches 10 points in Spain, similar to the average of the EU Member States. Yet, although the number of women accessing the Internet has increased over the last decade, the digital divide has not decreased. Furthermore, besides the quantitative disadvantage marked by the differences in the proportion of women and men that are accessing ICT, a qualitative drawback also emerges affecting those already incorporated into the new technologies. A *second digital divide* is then revealed. This new hurdle clearly delays the effective incorporation of women into the Internet community as well as the realization of their full socio-economic potential, acting as a factor for future marginalization. Thus, considering the digital divide and differences in gender use of the Internet, it is important to consider the momentum of the e-inclusion of women as a collective goal. Even if this requires additional effort, it will generate a positive benefit in terms of economic and social returns.

OBJECTIVES

This paper analyzes the gender digital divide, attending to the variables that explain differences between men and women in terms of:

- Access: in terms of frequency and intensity of use.
- Uses: different use by women (education; health; social assistance) compared to men (leisure and consumption): why/for what reason/how?
- Skills: gender differences in computer and internet abilities (digital literacy)

Our aim is to explore to what extent gender differences in terms of access and Internet use are significantly contributing to economic growth and social welfare. In order to do this, first we analyze the different ways in which men and women use the Internet. Next, we explore whether or not women have greater difficulties than men in getting up and running on the Internet. In short, we try to uncover the *gender digital divide*. To do so, we elaborate indicators that allow for the development of a synthetic index, the System of Information about Gender and ICT (SIGICT). This pioneering instrument overcomes the limitations of the current system of knowledge (particularly in relation to sex disaggregated data) and constitutes an easy and innovative measure of the gender digital divide, illustrating not only its quantitative but also its qualitative dimensions. The final goal of this paper is, from the perspective of socio-economic welfare, to investigate the differences in gender use of the Internet, and the main barriers to increasing the rate of female Internet users- an increase that would generate more positive effects in terms of social returns.

METOHODOLOGY

The source of the fundamental statistical information for this paper is the Spanish Survey of Information and Communication Technologies (ICT) Usage in Households and by Individuals prepared by the National Statistics Institute of Spain (Instituto Nacional de Estadística de España- INE) using the Eurostat methodology. The microdata from the survey from the first semester of 2006 were used, disaggregated by sex. These data were compared with other sociodemographic variables (age, education level, employment, etc). Based on the findings, quantitative indicators were devised to measure the gender differences in the access and use of ICTs. Particular interest was focused on the Internet. The following table introduces some of the concepts and categories that were used.

Table 1. Definition of concepts

CONCEPT	DEFINITIÓN
Computer skills	Computer and Internet skills
E-experience	Experience in Internet use
E-abilities	Internet related abilities
E-intensity	Intensity of Internet use
E-information/ leisure	Online information and leisure services
E-administration	Online public administration services
E-education/ training	Education and training services online
E-commerce	Online buying and selling of goods and services
E-banking	Online financial services

Source: Castaño, C., Martín, J., Vázquez, S. and Añino, S. (2007)

We used these indicators to create the System of Information about Gender and ICT (SIGICT). This system allows the scope of the gender digital divide to be highlighted in a more synthetic and precise way. This is both a quantitative and qualitative assessment that reaches beyond the question of access in order to take an interest in the effective incorporation into the ICT.

The SIGICT methodology is based on assigning different values to each one of the categories. The result is a group of variables weighed according to qualitative assessment. At the same time, a synthetic presentation of these variables is achieved: a score is given for each concept that is analyzed. In this way we are able to determine the relative position of women and men regarding the dimensions or concepts considered.

RESULTS

Differences in gender use of the Internet

Upon examining several aspects related to Internet use our initial hypothesis is the following:

- Men tend to use the Internet in ways related to leisure, consumption, and recreational matters.
- Women's use of the Internet is related to improving social and human capital, which could generate greater socioeconomic well-being.

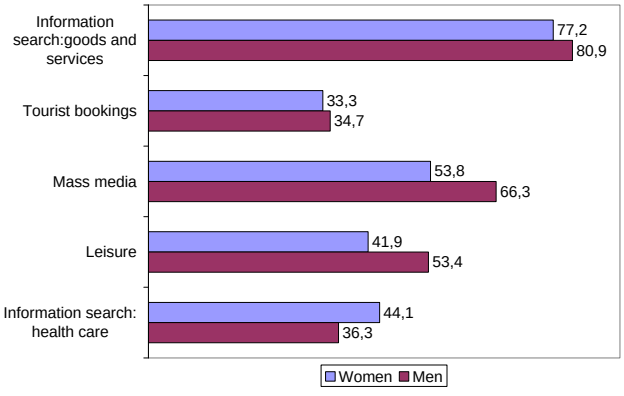
In order to analyze the diverse uses of the Internet we have classified those uses in terms of the services they provide: information and leisure, public administration, education and training, commerce, banking or financial services.

E-INFORMATION/ LEISURE: ONLINE INFORMATION AND LEISURE SERVICES

The data show male predominance in those online services related to recreational matters (games, music or media). On the contrary, women users opt in greater numbers for uses of a more practical nature. For example, inquiries about health related issues:

- occur with particular intensity in women ages 16 to 44 (which leads us to believe that a connection exists with family related responsibilities)
- tend to increase in accordance with a higher level of education (at the same time as the differences by sex are reduced).

Chart 1. Internet Services: Information and Leisure



Source: Castaño, C., Martín, J., Vázquez, S. and Añino, S. (2007)

E-ADMINISTRATION: ONLINE PUBLIC ADMINISTRATION SERVICES

The use of online public administration services is still a practice that is not widely used by the public. Nevertheless there are significant differences in gender use.

Women use the Internet more frequently to search for employment, social benefits and health services, register for education or training, and gain library access. Men, on the other hand, choose tasks of a more traditionally masculine nature. These tasks include obtaining official documents and certificates, filing taxes and making formal complaints to the police.

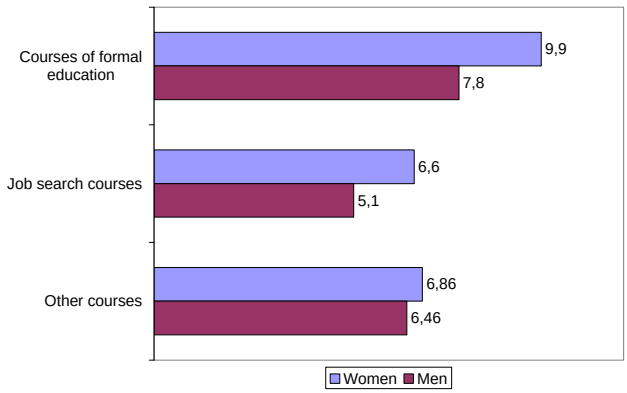
E-COMMERCE: ONLINE BUYING AND SELLING OF GOODS AND SERVICES AND E-BANKING

Men opt for uses related to economic transactions: buying and selling of goods and services and electronic banking. Men in greater numbers than women purchase trips and tickets to shows, as well as computer software and materials. Furthermore, there are almost ten points of difference in gender use regarding electronic banking: 26.6% of women compared to 36% of men.

E-EDUCATION AND TRAINING: ONLINE EDUCATION AND TRAINING SERVICES

Women use online education and training services more frequently than men, particularly young female users with university-level studies and/or who are unemployed. This suggests a possible existence of a virtuous circle: education, Internet access and online education and training.

Chart 2. Use of education and training services



Source: Castaño, C., Martín, J., Vázquez, S. and Añino, S. (2007)

The data indicate that a greater incorporation of women into the Internet community could generate an added social benefit, both for the women themselves and society. Nevertheless, reaching this goal requires overcoming

obstacles to the full and effective incorporation of women into the Internet community.

The magnitude of gender differences

Despite the advantages of greater female e-inclusion, gender differences in access and use constitute an important barrier to making the most of ICTs.

In accordance with countries in our geographic and socioeconomic environment, the percentage of population that are Internet users has increased considerably in Spain in the last few years. Nevertheless, the percentage of female Internet users is still far behind that of male users (48% compared to 55% in 2007 for occasional female and male users, and 40% compared to 49% for regular users; figures from the Survey of ICT Households 2007). Furthermore, in today's society, the ways in which ICTs impact women differ greatly from the way in which they impact men. There is a growing concern for these matters, especially in the case of the gender differences in use and skills.

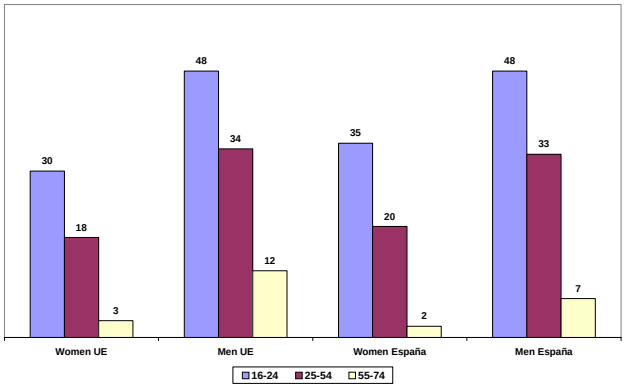
According to the Eurostat data for 2006, diverse levels of the gender digital divide exist which prevent women from incorporating themselves into the Information Society (IS) and participating in it under equal conditions.

In the European Union, men are more regular users of Internet than women in all of the countries and age groups. Among youth (16-24 years of age) the percentage of men (67%) that use a computer on a daily basis is greater than that of women (62%). There is also a significant difference between the number of boys (53%) and girls (48%) that use the Internet on a daily basis. The gender digital divide is first of all an access divide. In Spain these differences are smaller than the average of the EU-25, with 58% of men and 56% of women with access to computer use, and 44% and 41% with daily Internet access (Eurostat, 2006).

Some authors have established the importance of time availability and the influence of employment status. Kennedy, Wellman and Klement statistically demonstrate the influence that women's limited time availability has on their access to the Internet, "the gender division of household responsibilities determines the time that women can spend online and the presence of children affects them more than it affects men" (2003, p. 89). Hargittai and Shafer (2006) insist upon the impact that differences in leisure time availability have on the intensity of use. On the other hand, studies by the OECD consider that the incorporation of women into the Internet community in smaller number is related to their lower rate of activity and employment, and that they are involved in greater number in activities and professions (education, health, social services) that rely less on computers (OECD, 2007). Without a doubt the gender differences in salary and financial standing also affect their access to the Internet.

Another important factor is the lower level of computer and Internet skills among female users, which makes it hard for them to obtain the maximum benefit from ICTs. In the European Union as a whole the proportion of women with a high level of computer and Internet skills is smaller than that of men for all age groups. In the youngest group (16-24 years of age) gender differences remain: only 30% of female users have a high level of skills, compared to 48% of male users. This represents a divide of 18 percentage points in these skills. In the case of Spain, the situation is relatively better, although 13 points still separate one sex from the other.

Chart 3. Female and male users with high-level basic computer and Internet skills (%)



Source: Eurostat, 2006

This data provide a relatively favorable picture of the Spanish case compared to the average across the EU. There are motives for optimism because the number of female Internet users is increasing every year. In Spain the percentage of women that have used Internet at least once is nearing 50% and that of frequent users (at least once a week) is situated at 40% (Survey of ICT Households 2007). However, it would be a mistake to confuse the increase in the number of female users with the disappearance of the digital divide. The number of women that use computers and Internet is increasing, but the gender digital divide is evident as far as computer and Internet skills are concerned, even among the youngest group (16-24 years of age). Furthermore, education level does not reduce the size and intensity of the digital divide in computer and Internet skills, but rather accentuates them. The differences between the sexes are smaller in simpler and more frequent skills (copying folders; cutting and pasting in a document). In more advanced skills (installing components such as a MODEM, or writing software programs) women with university studies are situated between 15 and 25 points behind men with the same level of studies

These concerns have been present for some time now in the literature and empirical investigations in this field (Spertus, H. 1991; AAUW Educational Foundation, 2000; Artal, et al., 2000; Margolis and Fisher, 2002; Millar and Jagger, 2001) and have been linked to others such as the

stagnation, and even the reduction in the percentage of women who study technological degrees (information technology and engineering).

It seems as if there were invisible barriers that determined that technology remains as part of the realm of men, while women are prisoners of a type of technological reluctance.

The gender digital divide is also represented through the small proportion of women who work in the ICT field (0.7% of total employment). This situation has not improved from 2001 to 2006, while the proportion of men increased slightly (from 2.3% to 2.6%). In the case of Spain, these ratios are 0.6% in the case of women and 2% in the case of men. What's worse is that these gender differences in ICT professions does not seem to have a tendency to decrease in the future, given that they are more pronounced among the youngest group (under the age of 40 years) than among the mature group (Eurostat, 2006). For the EU as whole, the differences between ICT professionals over 40 is situated between 1.8% of total male employment and 0.5% of total female employment (1.3 percentage points of difference). For those under 40, the differences are much greater: ICT professionals represent 3.5% of male employment compared to only 0.8% of female employment, in other words, 2.7 percentage points of difference. In the case of Spain, the differences are also worrisome among the youngest group, but are smaller. This is because employment in ICT has similar statistics as the rest of the EU both for young and mature women, while it is much lower among men from both age groups (2.8% for the youngest group and 1% for the mature group).

The reality of the incorporation of women into the Internet community in Spain: the System of Information about Gender and ICT (SIGICT)

Despite the analysis that was carried out, gender differences regarding incorporation into the ICTs are more easily detected with more complicated indicators. This is the objective of the System of Information about Gender and ICT (SIGICT) that was developed through the *E-equality Observatory*.

This system allows variables to be differentiated from one another in function of their distinct nature; in other words, according to the different impact they have on gender inequality and the difficulties of overcoming it. The SIGICT variables provide information not only of a quantitative nature but also of a qualitative one, describing the scope of the phenomena through unequal assessments.

As reflected in Table 2, women have a four-point disadvantage with respect to men in the use of the Internet or e-experience. Female disadvantage is even higher in the area of technological skills: the divide is of almost twenty percentage points in the case of skills related to computer use and more than twenty-one in the case of Internet use.

Table 2. SIGICT: Summary of Findings

	SCORE		
CONCEPT	WOMEN	MEN	W / M
E-experience	300	314	95,5%
Computer and Internet skills	455	557	81,7%
E-skills	526	668	78,8%
E-intensity	1652	1775	93,1%
E-communication	162	169	95,6%
E-information/ leisure	268	284	94,6%
E-administration	174	174	99,9%
E-commerce	469	502	93,4%
Total e-inclusion	4006	4443	90,2%

Source: Castaño, C., Martín, J., Vázquez, S. and Añino, S. (2007)

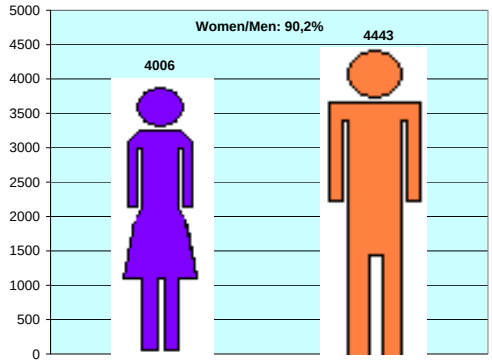
The analysis of the intensity of Internet use (e-intensity) indicates a difference of seven percentage points between female and male users, to the disadvantage of women. The differences between female and male users are less pronounced than in the case of access conditions stated before. Nevertheless, men also maintain an advantage here over women. The margins oscillate between five points of difference in the case of the use of information and leisure services to practically an equal number in the use of public administration services. There is hardly any difference between the figures of women and men that have done e-commerce when considering the factor of the moment of their last purchase. However, women score fourteen percentage points less when considering the number of products acquired. This last figure indicates the degree of diversification of e-commerce. Combining both results, the whole assessment of e-commerce in Spain from the gender perspective indicates that women are almost seven points behind men.

Once again the disadvantage that women face with respect to men in the field of ICT becomes evident. This is especially true in the case of access and use of the Internet, which is reflected in the totality of the concepts analyzed here. The total assessment of all of the aforementioned concepts generates a final classification of the situation of women and men in relation to the ICT in Spain. This classification indicates the respective level of e-inclusion in which there are ten percentage points of inequality in the degree of effective incorporation of women and men into the Internet community.

This disadvantage is not only quantitative- determined by the proportion of people who access ICTs- but also mostly qualitative. This situation decisively affects those who are already accessing these technologies. This reveals a situation of gender inequality on a second level. Not only is the existence of a gender digital divide confirmed, but the presence of a second digital divide of a farther reaching scope is as well. The second gender digital divide consists

of the most important barrier to the effective incorporation of women into the Internet community that prevents them from taking full advantage of their potential in terms of human and social capital.

Chart 4. E-inclusion



Source: Castaño, C., Martín, J., Vázquez, S. and Añino, S. (2007)

CONCLUSIONS

The use of computers and Internet by the public has become an essential component of social and economic welfare. From this perspective, both the number of users and the quality of the ICT use are important. One can affirm that some more intense uses exist than others in terms of generating human capital and social welfare.

In this regard, the differences between the sexes are evident and reflect the sexual division of labor in society. Men opt for uses related to leisure and consumption while women are less intensive users of Internet. The ways in which women use the Internet are more related to education and training as well as social welfare: e-information (health), e-administration (job searches and social services) and e-education and training.

Women should be incorporated into the ICTs and the IS for two main reasons: 1) as a question of equality and 2) because it would reinforce the use of the Internet to generate human capital and social welfare.

To accomplish this, a quantitative increase in female Internet users must take place. But this is not enough. The divide concerning computer and Internet skills must also be overcome. Both are key aspects with respect to the intensity and nature of the way in which people use the Internet.

Statistical information in Spain is still limited, but it allows for the differences in access and use to be described. Statistics do not, however, allow for any advancement in the explanation of these differences. In this sense, the development of the SIGICT constitutes an advance by allowing the circumstances that surround the second gender digital divide to be examined

Nevertheless, more variables must be incorporated that would permit the advancement of explanatory analysis of the gender differences in use and skill. Therefore, future statistical developments should make an effort to present a greater amount of superior data, a key aspect for achieving better results.

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