

## W20-Dialogue on Digital Inclusion, February 17, 2017 Berlin

Presentation by Prof. Barbara Schwarze<sup>1</sup>

One of the main W20-Dialogue panel topics of the German women's civil society and women's entrepreneurs organizations on their meeting in February 2017 focused on the topic of digital inclusion.

Looking at the digital revolution as one of the biggest opportunities and yet one of the greatest challenges for future participation of women in the global economy<sup>2</sup>, it is most important to urge G20 to reckon this as a main topic for the economic empowerment of women in their countries. This includes the implementation of the participation of women explicitly into the studies and the strategies for the digitization of private households, of education and economy.

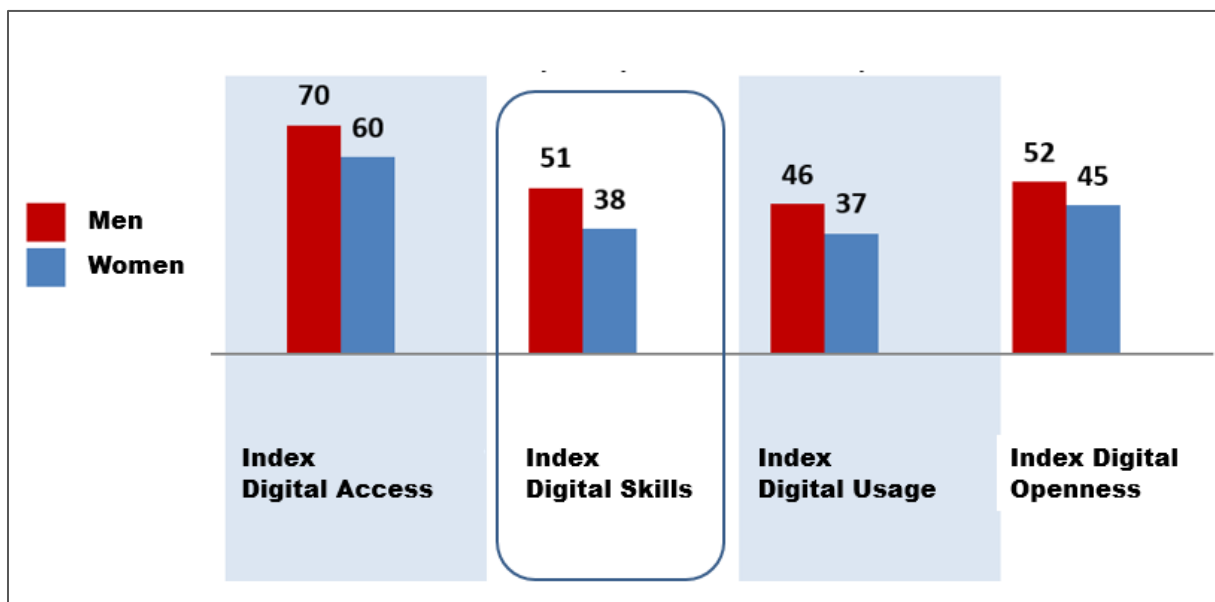
Digital inclusion means equal access, use and skills for women and men as well as to be informed and open minded for digital technologies. The Digital Index 2016-Study of the Initiative D21<sup>3</sup> with Kantar TNS pointed out that there still is a gender digital divide in Germany.

### Gender Digital Divide in Access, Skills, Usage and Openness

Looking at access, usage, skills and information the study points out that of course women in Germany are engaged in the digital transformation, but there still are differences between women and men that might be heavily effecting their chances for future employment.

Though there are still differences between men and women in access and digital openness, that have to be dealt with in the nationwide digital strategies, the most obvious and challenging tasks will be to support women in developing more profound digital skills and in gaining more openness

### D21 Digital Index 2016 – To dos for Gender Digital Inclusion in Germany



Source: <https://kompetenz.de/Aktuelles/PM-Frauen-Digitalisierung-D21-Digital-Index-2016>

<sup>1</sup> <http://www.w20-germany.org/the-w20/documents/> <http://www.w20-germany.org/focus/digital-inclusion>

<sup>2</sup> Women20 Dialogue Recommendations 15.12.2016

<sup>3</sup> The Initiative D21 is Germany's biggest non-profit network of companies and organisations for the digital society with Prof. Barbara Schwarze as a member of the board, [www.initiativeD21.de](http://www.initiativeD21.de)

The differences in **usage** are not a problem of the younger generation from 14 years to 29 years where more than 98% of women and men are using the internet and its applications. Even the age groups from 30 – 39 years (97%) and from 40 – 49 years (91%) have gained enough skills for access and use. The results show that elder women (more than elder men), unemployed women and men, singles and people with low education have rather low access and use rates<sup>4</sup>.

Concentrating on digital **skills** the study revealed that the biggest differences appeared in the age range between 50 – 59 years (difference of 20 indexpoints between men and women), followed by the age range of 40 – 49 years (difference of 15 indexpoints). Most distressing is the fact that this is followed by the differences between young men and women under 20 years old where there is a difference of 13 indexpoints.

Which are the **skills missing**? Regarding women under 20 years there is e.g. an extreme lack of skills in programming and in setting on networks. So there is obviously no gender parity in teaching digital skills to girls as well as to boys.

The ITU resumed in their global analysis 'Measuring the Information Society Report 2016' that there are wide discrepancies across the countries regarding female and male participation. "Consequently, there is a clear need for all countries to collect more gender-disaggregated data to unveil differences in Internet use among women and men and support policy-makers in finding the most appropriate responses."<sup>5</sup>

### **Digital Skills in Education**

There have been a big number of projects in Germany to attract girls for vocational training and studies in the STEM-field. The nationwide Girls' Day, which is very successful in inviting young female students up from the age of ten to broaden their vocational choices by visiting technical companies and organizations, reaches about 100,000 female students each year and 9,600 companies and organizations<sup>6</sup>. Another project, the Nationwide Pact for Women in STEM, which started in Germany in 2008, was successful in increasing the percentage and numbers of first-year students in engineering from 21% to 24%, more than doubling the numbers from 27,000 in 2008 to nearly 60,000 in 2015. In the same time the percentage of female first-year students in computer science increased from 18% (6,400 students) to 24% (16,900 students) as well.

But the projects were not successful in the vocational fields regarding for example qualified IT-specialists, where only 6,8% of the 28,700 young people in vocational training are women. The strong stereotypes in society judging programming or building up networks as male dominated, nerdy, not communicative and not helpful for the future of humankind, stand against female vocational choices in ICT.

**Regarding the upcoming increase of digital skills in a lot of professions, we have to react soon as otherwise women will be excluded from ICT-professions in several of the developed countries.**

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<sup>4</sup> Initiative D21: D21-Digital-Index 2016: (N)onliner Atlas 2016 – Wie entwickelt sich die Internetnutzung in Deutschland?

<sup>5</sup> ITU: Measuring the Information Society Report 2016, Geneva, p. 203.

<sup>6</sup> Girls' Day: <https://www.girls-day.de/english>

As Catherine Caruana-McManus, Australian founder, points out by using the example of the Internet of Things (IoT)<sup>7</sup>: Regarding women and young girls, the attraction might have been lost in translation. “The majority of discourse relating to industrial and commercial IoT from vendors and governments has focused almost entirely on the technical aspects of IoT, the billions of devices that will be connected, the billions of dollars that will be made by telco and IT companies and the issues with standards and security,” Caruana McManus said. Stories and case studies about how IoT is going to make our lives better to prosper in a more productive and equitable society are hidden amongst the hype. “The conversation needs to change in order to attract girls, women and young people in general.” (Gutierrez 2016).

**Digital Transformation in Profession**

Getting prepared for the digital transformation in all their jobs, women have to become familiar with digital tools and ask for advanced training. There is a gender digital divide in a lot of professions, the D21 Digital-Index 2016 points out especially to the administration and office jobs.

**Digital systems, machines and media provided by the employers in office workplaces<sup>8</sup>**

Total, women and men in percent 2016

Digital Devices	Women	Men	Total
Collaboration-Tools	27%	54%	42%
Conference Call Services	29%	51%	41%
Home Office, Mobile Working	24%	52%	39%
Smartphone	13%	40%	28%
Videoconference Services	15%	38%	27%
Usage of Private Devices (BYOD)	16%	27%	22%
Tablets	7%	24%	16%
No Devices at all	41%	22%	31%
No Answer	2%	2%	2%

Basis: People working in office jobs, Total n= 666, Women n=349, Men n=317

<sup>7</sup> Gutierrez, Peter: Inspiring more women into IoT careers. May 31 2016, <https://www.iothub.com.au/news/inspiring-more-women-into-iot-careers-420277>

<sup>8</sup> D21 Digital Index 2016

### **Watch out: Algorithms may transfer the bias of the analogue into the digital world**

The criteria for decisions made by algorithms in e.g. hiring people for jobs have to be revealed. If digital tools are precollecting applications for a job, we have to know which the criteria are for eliminating or choosing special applicants. What are the assumptions made by the software developers and what are the requirements given by the management? Do they value women working in technical professions, do they appreciate people from foreign countries/cultures?

If it is a learning tool, we have to know, which are the findings the program is learning by and what are the results. If the first and second choice for hiring or for giving credit is done by speech analysis technologies as for example PRECIRE Technologies<sup>9</sup>, what are the implemented principles for decisions to create a “valid picture of employees, customers, applicants and other conversational partners”?

*“Thus, the software can make precise statements about the communicative effect of speech as well as about emotions, personality and linguistic competence of a person, or about motives and attitudes of individuals or of a group of people.”  
(PRECIRE)*

**We have to be careful not to implement a well-known bias of the analogue world into the digital tools used for example in human resources activities. Who is in command and who is in control? Who will train software engineers or app-designers on gender and diversity skills to avoid discrimination?**

As we already know from the experts in computer science we might have to deal with a preexisting bias being implemented willingly or not-willingly into the software as well as a technical bias (or limitation) we are not informed about, or an emergent bias, not learning that something is going wrong

### **Private Life**

Families will increasingly benefit from digital technologies at home as they can gain more quality time for their family life and private activities e.g. by working at home and use digital technologies and services. But - only 40 Percent of the companies in Germany offered work in home office<sup>10</sup> at the end of the year 2015. The companies not offering home office argued that permanent physical presence is needed, that they do not have the resources to let people work at home and that they want to be able to reach their employees any time in their working hours.

The Digital Index 2016 shows that women are not taking part in online shopping and selling as much as men, do not order as much digital services (travel bookings, deliveries, car-sharing) as men and do not use as much online demand services as men.

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<sup>9</sup> Website PreCIRE: <https://www.precire.com/en/home-2>

<sup>10</sup> Erfolgsfaktor Familie: Studie: Digitalisierung – Chancen und Herausforderungen für die partnerschaftliche Vereinbarkeit von Familie und Beruf. Auszug der Kernergebnisse November 2015.

**Digital Commerce Women and Men (frequent use of the internet)<sup>11</sup>**

Services	Women	Men	Total
Online shopping (buying goods)	43%	57%	50%
Digital services (travel bookings, deliveries, car sharing)	30%	42%	36%
On-demand-services (Spotify, Netflix, Amazon Prime)	20%	31%	26%
Selling goods or services online	15%	20%	15%

Total n=1.902; Men N=870, Women N=1.032

So, saving time and gaining quality time for the family by using digital services will have to be carefully observed if there will be equal achievement for women. Besides the Digital Index 2016 results show that people of lower income are significantly less able to ease their private tasks by using the internet.

**Conclusion for gender digital inclusion**

- Create more programs for digital skills for girls and women (coding, programming)
- Insist on gender- and diversityfair algorithms
- Sensitize ICT Trainers and lecturers to value gender and diversity
- Claim digital tools for women at work
- Integrate women in all projects for digital transformation.

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<sup>11</sup> Initiative D21: D21-Digital-Index 2016.