

Bridging the Digital Gender Gap



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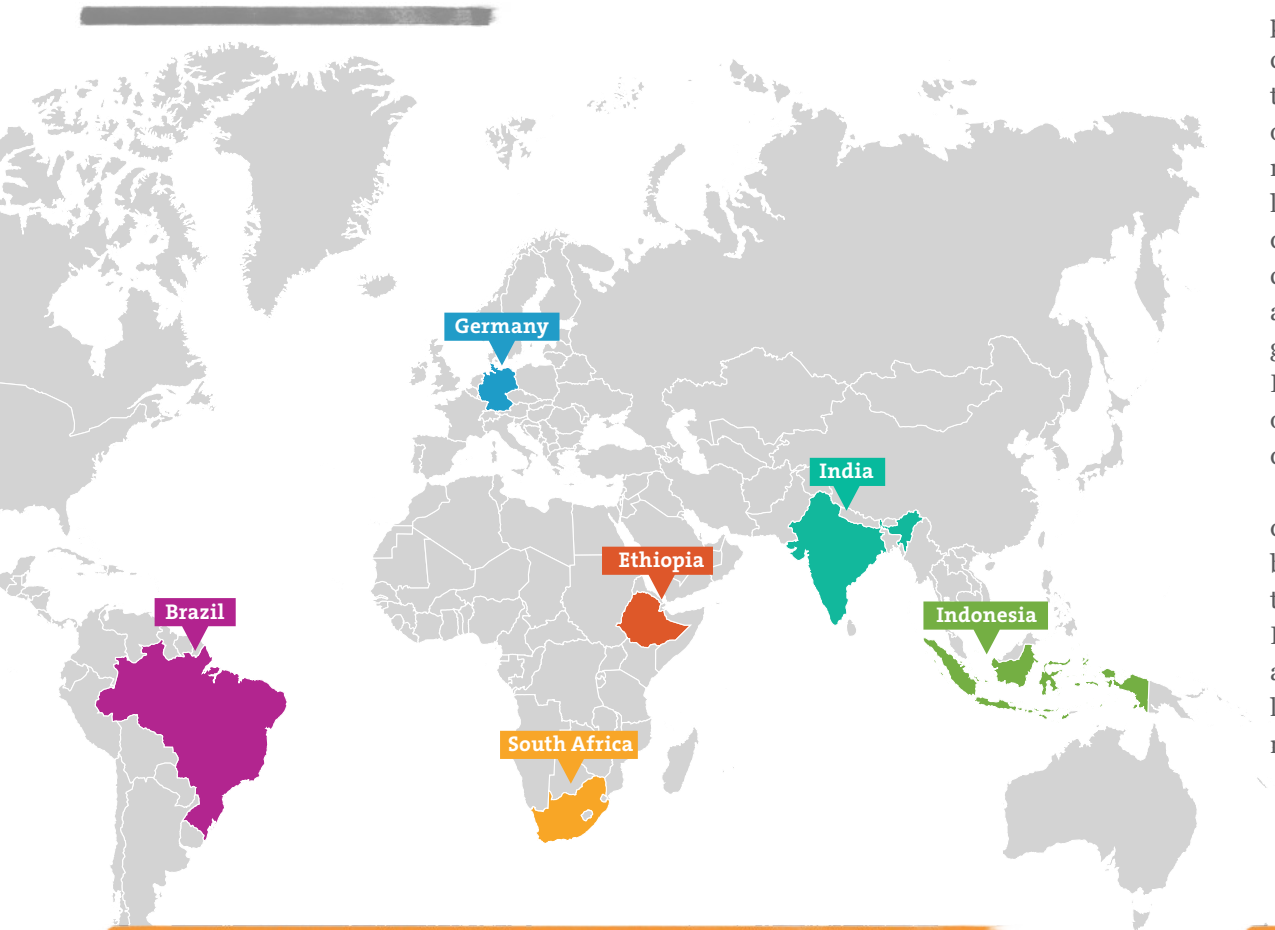
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In cooperation with



Introduction

The internet has changed the world faster than any previous technology. In less than three decades, more than 40 per cent of the world's population have gone online. Today, in some of the world's most impoverished households, you're more likely to find a mobile phone than a toilet with running water.



Technological development brings a lot of changes with it. Digital technologies create new forms of participation and inclusion; they can improve the efficiency of organisational and administrative procedures and provide diverse possibilities for creativity and innovation. Digitisation long ago became a new source of cultural capital. The World Bank predicts that a 10 per cent increase in mobile phone technology coverage amongst the populations of emerging markets would lead to an additional 1.2 per cent increase in annual economic growth. The World Development Report of 2016 dubbed these developments 'digital dividends'.

Yet such benefits are not equally distributed. Only 1.1 billion of 7.4 billion people worldwide have access to high-speed internet connections. Rapid developments in digitisation also throw barriers to access into relief: educational levels and financial resources define the limits of access-

ibility, and cultural and geographical factors play a role, as do regional infrastructure policies. Digitisation deeply emphasises the inequality and disadvantages suffered by specific population groups. On a global scale, the digital footprint of industrialised nations – including access, scope of use, and organisation of digital content and products – is totally disproportionate compared

to those of developing and newly industrialised

countries. In short, the internet

empowers the people who

have access to it. Those with

little or no access are faced

with the prospect of increasing

social and economic inequality. The issue of

'equal access to technology'

is taking an increasingly prominent place on the agendas of national and international development initiatives.

But the internet also creates divisions among those who have access: many people are merely

trained to be passive consumers, and

very few are able to create content.



The digital gender divide is growing

Women are particularly affected by the digital divide and its exclusionary mechanisms. This fact, which only came to be acknowledged by research and political debates within the last five years or so, was confirmed in early 2017, in an alarming report issued by the International Telecommunication Union (ITU). This report demonstrated that the digital gender divide is growing. In global terms, the per centage of women with internet access is 12 per cent lower than that of men. This gap exists all over the world, but it is particularly pronounced in developing countries.

This situation must be changed if women and girls are to benefit from digitisation, and if the UN's development goals on gender equality are to be achieved.

Brazil, Ethiopia, Germany, India, Indonesia, South Africa

Our survey focuses on six countries, four of which received mid-level rankings in the socioeconomic development index published in the Human Development Report. Germany is among the top 10, whereas Ethiopia comes in towards the bottom of the table.

This spread means that in the countries included in our overview, the monthly average income ranges from 120 to 3,900 US dollars. The countries included are similarly diverse when it comes to their level of digital development. The same holds true in terms of gender equality, with the social position of women and girls varying from country to country, in terms of their legal, economic and cultural situations.

These variations – which are evident from an initial overview of the countries – intensify when we take a closer look, when traveling around and talking to locals. Taking into account aspects such as the differences between urban and rural areas, the rich and the poor, and the young and the old, the target group of 'women' becomes increasingly complex.

Reports from six fundamentally different countries

To fully comprehend this complexity, we tried to get to the roots of social inequalities. Our particular interest is in what the people who work on digital technology make of the target group 'women'. We interviewed start-up founders about the significance and position of women on the digital maps of their countries and

markets. We visited social enterprises and enquired into the specific opportunities for, and obstacles to, reaching women and girls via digital channels. We asked people whose initiatives and products aim at empowering women and girls, about which strategies have been particularly successful. Additional interviews with experts serve to contextualise the field reports in relation to current political, economic and sociocultural frameworks.

In the process, a new perspective on this topic emerges, confirming the data-based research conducted by experts, but also contributing other facets. In particular, we take the preliminary work done by the ITU, the GIZ and the World Wide Web Foundation with us into the field, whilst reporting from six fundamentally different countries.

The survey is intended to serve as a field report and a source of knowledge, as well as providing specific policy recommendations. All of this is necessary in order to make targeted and effective interventions that will foster the digital inclusion of women and girls.

Executive Summary

For our research we have travelled to six countries in which socio-economic development, levels of digitisation or gender equality are fundamentally different. In these societies, there are significant differences in the legal, economic and cultural position of women and girls.

These differences – between rural and urban areas, between age cohorts, income and ownership categories – structure their access to, and interaction with, the internet. The digital inclusion of women must become a permanent item on the agenda, both in national plans around technological development and in development aid policy.

1. Understanding the Socio-cultural Contexts of Women

- Incorporating the target group in the development of services and products: user-centred design as the basis for all interventions.
- Not just working with women, but also with ‘gatekeepers’ – with parents, husbands, mothers-in-law, teachers, village elders.
- Even for international projects, region-specific solutions need to be developed.

2. Beyond Pink Content

- Targeted promotion of non-government and social organisations with relevant online content for women.
- Disseminate public information on a local level.
- Promote services which are tailored to the living and working reality of women. Providers of online services for women must be motivated to carry out comprehensive target market analyses and to tailor their services to the needs of women. The services must be compatible with the local living and working conditions of women, incorporating time constraints and sociocultural considerations.
- For the development and design of online services, gender-diverse teams should be strategically sought out and promoted.

3. Learning and Surfing in Safe Spaces

- Promote safe digital spaces for women.
- Use peer-to-peer approaches in education programmes and for digital communities.

- Train platform moderators who promote gender awareness, but also support anti-discriminatory guidelines and laws.
- Systematically prosecute online violence against women and set up simple reporting systems.

4. Promote Research, Improve Dialogue

- Promote qualitative research and support its institutional adoption.
- Data needs to be collected more frequently in order to reflect the speed of digital transformations.
- Dialogue between participating research institutions and think tanks must be improved.

5. Promote and Improve Visibility of Role Models

- Promote projects which encourage women and girls to develop technology.
- Train women to become tech teachers at schools and universities.
- Strengthen girls’ freedom to choose what they want to focus on in their use of technology.



Brazil

Structural Disadvantage and Patriarchal Culture

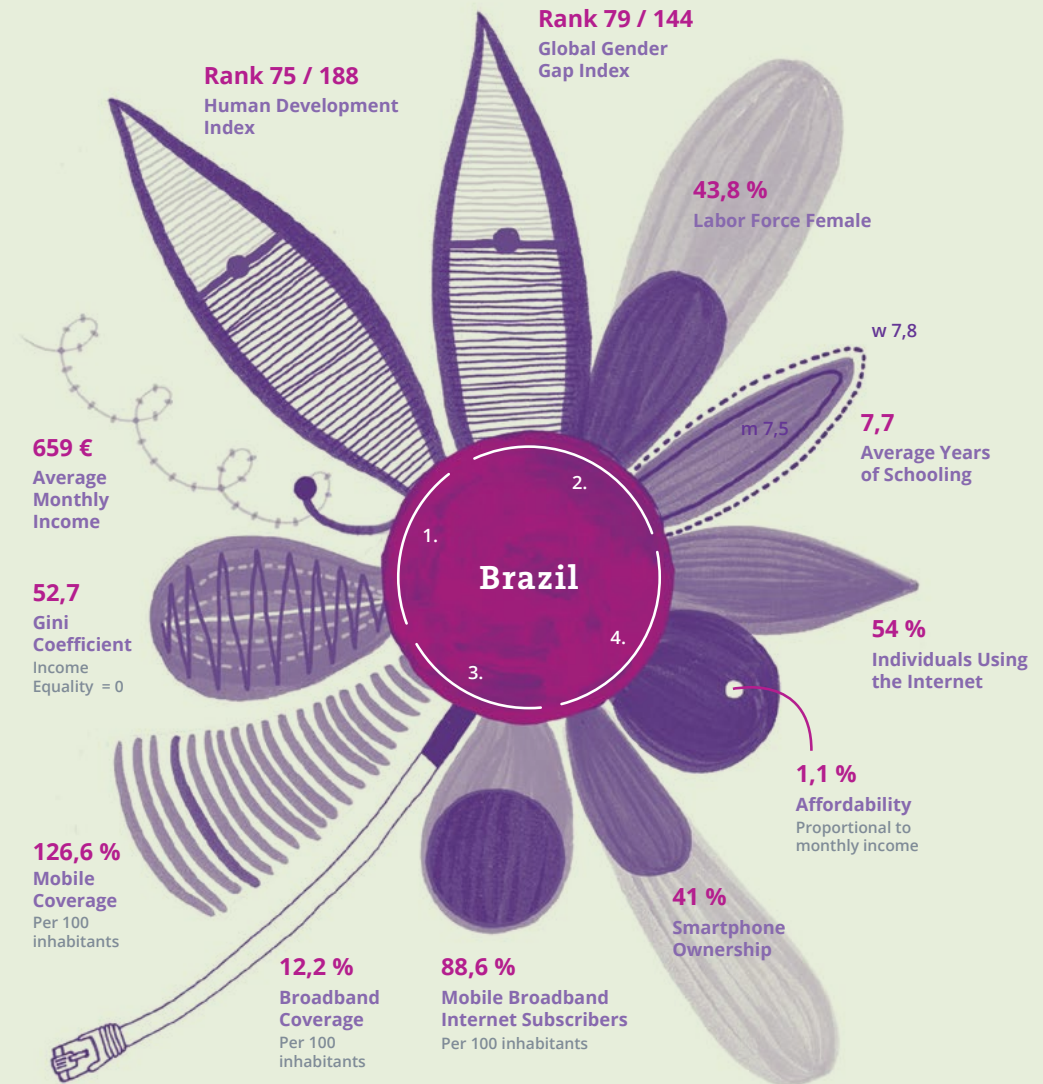
by Anja Adler and Manuella Cunha Brito



1. GENERAL DEVELOPMENT



2. GENDER DEVELOPMENT INDICATORS



3. ICT DEVELOPMENT INDICATORS



4. DIGITAL ACCESS

See annex for a complete list of sources for indicators .

The examination of the digital gender divide in Brazil follows a different pattern than the other reports in this publication. Anja Adler (Berlin) and Manuella Cunha Brito (Rio de Janeiro) put together a report connecting through Skype and E-mails, trying to reach activists and compile numbers. Manuella Cunha researched locally, connecting to activists all over the country for direct information. Anja Adler spoke to researchers currently in Europe. A first outlook already gave a clear taste of the structural disadvantage of women.

An overview on inequality

According to data from the Human Development Report 2016 Brazilian women stay in school longer than men, have a higher average level of literacy and a higher life expectancy. Gender equality, however is still far away. The same data set displays that the overall workforce consists of 57 per cent women and 78 per cent men. Only 10 per cent of all members of parliament are women. The 2014/2015 Global Wage Report found a 24 per cent salary-gap between women and men. The Gini index from 2013 ranked Brazil as one of the most unequal countries in the world – holding 13th place among 150 nations.

ICT and internet in Brazil

Structural deficits and inequalities abound. The latest annual household survey of the Brazilian Center of Studies on Information and Communication Technologies documents that almost half of the country's population still has no access to the internet: With only around 51 per cent of the households connected to the internet, Brazil occupies an intermediary position in Latin America. Regional

Regional differences are vast, the North of the country is half as developed and connected as the Southeast.

differences are vast, the North of the country is half as developed and connected as the Southeast. Additionally, the number of households with internet access has remained fairly stable since 2013. Only the number of mobile internet users continuously grows – between 2014 and 2015 by ten per cent, that year 56 per cent of the population accessed the internet via mobile phones. During the recent

years an array of programmes intended to mend regional and social connectivity-differences.

It is apparent that most of these initiatives failed. Currently there are efforts to revise the National Broadband Plan - five years ago it was mainly aimed at building infrastructure and regulating competition. A new plan is supposed to focus on the digital economy, addressing socio-economic inequalities which the internet brings about.

Telecenters are left to dwindle

There are many examples how initiatives start well but then are left to dwindle – one idea prompting meaningful use of internet for women in hard to connect areas was the

Telecenter. Manuella Cunha reaches out to Adriane Gama, a biologist by education and coordinator at Coletivo Puraqué. She has specialized in development projects in the Amazonian region and knows about the country's daring geography. The conversation is marred by the feeble internet-connection - the state of Para, where Gama is based, is among the regions with large areas of untouched rainforest.

The Telecenters are neighbourhood hubs and they were planned to be placed strategically. They helped local communities in

general and women in particular to connect to the internet.

"The Telecenters were not just about technology, but used to be a place for the

whole family," Gama relates. "You would see children from the village attending movie nights. Old men fixing computers." Gama found out that under the new government the Telecenters are receiving less funding. It remains unclear, who decided to reduce the funding and to what degree the support will be cut. But Gama sees especially rural women as victims of this political move "Without funding for local programmes, it becomes hard to reach women in these regions."

Patriarchal culture keeps women from technology in rural areas

One of the main forms of oppression in Brazil is patriarchal culture. Patriarchy prevails in rural areas and sometimes even prevents women from using any form of technology. For Débora Leal this reality is memory at best. She currently researches on new economic models at the Schumacher College in Dartington Hall, close to Devons pictorial south coast. Throughout a phone-conversation

recollections from her time in a small community in the North-East of Para return vividly: A riverside stretch along the muddy shores of the Amazon, stilt houses, with about 400 in-

habitants. She gasps in exasperation: "Some families didn't even buy washing machines, because they believed women would become lazy if they do not wash the clothes in the river." In the area women are not banned explicitly from technology, but expected to prioritize household tasks. Leal worked on a project to connect the community to the internet. She had to recognise that infrastructure by itself will not cut it for women.

"Some families didn't even buy washing machines, because they believed women would become lazy if they do not wash the clothes in the river."

Women suffer from unaddressed gender violence online

Brazilian women face massive harassment once online. If at all there are few moderators or forums to turn to, help-lines for online violence are virtually inexistent. Although legislation against domestic violence against women, known as "Maria da Penha"-law, has been passed in 2006, it seems as if the Brazilian internet has no restrictions for gender violence. Private enterprises so far act carelessly. Lorraine Porciuncula, an analyst on Broadband Policy at OECD in Paris, acknowledges the role of this cultural factor when it comes to increasing internet use. Born in Brazil, she acknowledges that the country has a lot of local online-content. "Brazil has a deeply rooted sexist culture and gender violence online is a big issue. Some women who were exposed and harassed have been traumatised or even lost their lives because of it. And a discussion about this, especially on the political level, is only starting."

Helping women produce ICT and changing designs

Patriarchal culture affects even the self-perception of young, urban and well-educated women who work within the tech-sector. Alda Rocha is based in São Paulo and has worked for 18 years as user experience designer.

For herself, it has been tough to find a way into coding: "People still do not know how to deal with a women as part of the tech universe." Rocha regards the quality of women's engagement with and through ICT as the main point of leverage: "As much as we need more infrastructure for women, we need to train women's capabilities to produce content. This is fundamental." She fosters hope that more women having access to and working in tech would change things. The argument gathers popularity in the Brazilian start-up scene: More women in sight relating to technology would empower others. This could change the way technology looks and feels or even how it is distributed. By launching the organization Codamos, Rocha started to promote women in technology. She advocates female speakers for tech-conferences and offers introductory coding-workshops for women.

Mobile internet as an option to reach out to women

A household survey from 2015 by Brazil's internet Steering Committee found out that mainly for the lower class phones are the predominant connection to the internet. And activists find it difficult to find empowerment for women through mobile connections, as Alice Freitas, founder of

Rede Asta, explains. By offering a direct sales network she supports marginalized producers - almost exclusively women - with direct access to consumers. "Most of the women artisans we work with own a cellphone. But do not necessarily reply to our messages because they can not type on the small keyboards. Or because they simply do not know how their phones work." Freitas seized the opportunity: "Why not offer mobile phones charged with learning-apps which help women to use the technology in more productive ways?" Rede Asta conceived an online learning platform to empower female entrepreneurs by also testing out easy and facilitated mobile entry ways.

Makerspace Olabi in Botafogo

In bigger cities however, a few initiatives support women in the production of apps or educational programmes. Since 2014 the makerspace Olabi in the Botafogo district of Rio de Janeiro focuses on inclusion and diversity. Botafogo is a middle-class neighbourhood and Olabi shares the unit with a vegan shoe

store – unheard of in most parts of the country. Inside, desks and sitting opportunities are scattered in one large room, the atmosphere is relaxed, currently just a handful of people sit behind their screens. On Friday evenings events attract 50 or more people, recently a study was presented to a full house, mapping the activity of black women in tech related projects all over the City.

The team of Olabi mostly comprises women. Gabriela Agustini, founder of the social organisation behind the makerspace, points out that little things really matter to improve the interaction of women with technology. "Having only big and heavy machines in a makerspace, for example, can intimidate many people. They have to ask for help to move it. I am a short and clumsy woman, so I try to facilitate things for people like me."

Changing the framing of tech-language

At Olabi they try to approach technology in a simple and didactic fashion. Therefore they attack the framing of technology. A recent workshop was

“Why not offer mobile phones charged with learning-apps which help women to use the technology in more productive ways?”

aimed at introducing basic Arduino hardware skills and the participants had no prior experience with Arduino. Instead of focusing on the technological side, the workshop was framed as a session on interactive costume design for carnival. The little twist lowered the barrier for women to join in. Such initiatives add to the atmosphere: "People here shouldn't have to be ashamed of saying that they have never seen an Arduino or a 3D printing in their life," Agustini explains. After a little thought she adds: "No matter if women or men."

We sit quietly for a moment, but there is one more question - how does she see the current political initiatives, do they help to attack structural disadvantages and steer against the macho-culture? Gabriela Agustini kind of mixes a loud laughter with shrugging her shoulders. The result is a somewhat hapless motion. She looks out of the window. Outside suddenly a tropic thunderstorm erupts.



Ethiopia

Position 109 in the
Global Gender Gap
Ranking

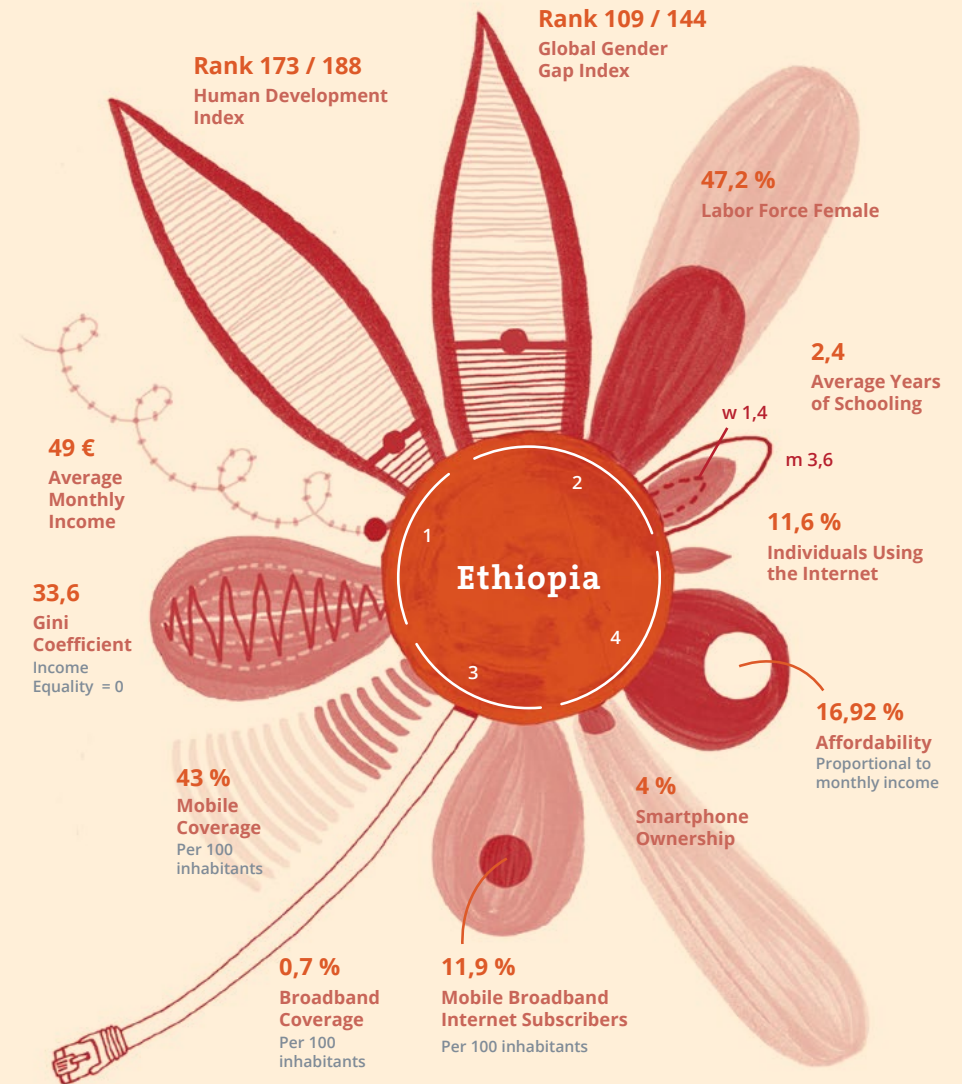
by Moritz Eckert



1. GENERAL
DEVELOPMENT



2. GENDER
DEVELOPMENT
INDICATORS



3. ICT DEVELOPMENT
INDICATORS



4. DIGITAL
ACCESS

Ethiopia is one of the oldest civilisations on Earth, and a country in which the newest technologies are spreading slowly. The East African state is dominated by men: they make the decisions, earn the money, and – where they're available – control access to mobile phones and the internet. In the World Economic Forum's 2016 Global Gender Gap Index, which analyses gender equality in the areas of the economy, education, politics and health, Ethiopia was ranked 109 of 144.

Ethiopian women are some of the poorest in the world, speak less English and leave the house less often than their husbands

In comparison to other countries, Ethiopia also lags far behind when it comes to information and communication technology (ICT) usage. Although the subject is firmly on the political agenda, with increasing investment in tech education, the number of people using ICT remains extremely low. According to the World Bank, in 2015 only twelve per cent of Ethiopians used the internet, and only 43 per cent owned a mobile phone. In the capital city of Addis Ababa, a few start-ups are emerging, but three things are hindering any real optimism: lots of red tape (foreigners, for example, cannot found a company in Ethiopia), a lack of investment capital, and insufficient infrastructure. Ethiopia is one of the last countries in the world in which there is only one telecommunications provider, with Ethio Telecom holding a monopoly.

Closing the digital gender gap is not the government's highest priority.

58 per cent of Ethiopian women are illiterate, which fundamentally restricts their potential to use ICT.

We can assume that significantly less than twelve per cent of women have internet access and they account for only 15-20 per cent of SIM cards. In rural areas, particularly in the country's poorest regions, the situation is even worse. There are many reasons for this, but three

stand out. Firstly, 58 per cent of Ethiopian women are illiterate, which fundamentally restricts their potential to use ICT. Sec-

ondly, Ethiopian women are some of the poorest in the world, while at the same time ICT access in the country is among the world's most expensive. Finally, Ethiopian women are less likely to speak English and leave the house less often than their husbands. Neither are good conditions for experimenting with ICT.

mTena as an SMS information service during pregnancy

Fassika Fikre and Tizzita Tefera founded mTena while a friend was pregnant. In Amharic, mTena is the equivalent of 'mobile health'. Their friend had experienced severe pain which she ignored for a long

time, until she experienced complications shortly before childbirth. Everything worked out in the end, but Fassika and Tizzita noticed that the situation was common for women in their country – they only go to the doctor when they can hardly bear the pain any longer. This makes a significant

health information about hormonal changes and the characteristics of the various stages of pregnancy, as well as nutritional tips and immunisation recommendations for newborns. One SMS costs women one birr, which works out to around four cents. mTena intends to expand their business model and finance

“Not only do we regularly send women messages via SMS, but we also send one to their husbands once a month, because in the end, they are the ones who pay for the service and who in some cases also let their wives use their mobiles for it.”

contribution to Ethiopia having one of the highest infant mortality rates in the world. mTena is an SMS information service based on the FrontlineSMS technology. From the beginning of pregnancy until a year after birth, mTena sends

it through corporate social responsibility funding as well as selling SMS advertising space. The service – founded in 2015 and currently in its pilot phase – will be advertised by the government-sponsored Health Extension Workers, which advocates

for basic healthcare across Ethiopia, particularly in rural areas. Now, they are explaining the benefits of mTena to women as well.

Currently, Tizzita is administering user tests in a large healthcare centre in Addis Ababa. ‘User-centred design’ and ‘iterative implementation’ are not foreign concepts to the two founders. They are supported by the NGO Reach for Change. Together, they are guided by the models of RapidSMS from Rwanda and MAMA from Bangladesh, who have been successful in offering similar services. When asked how they intend to soon reach many thousands of women with their service, they offer a straightforward response. “Not only do we regularly send women messages via SMS, but we also send one to their husbands once a month, because in the end, they are the ones who pay for the service and who in some cases also let their wives use their mobiles for it.”

Tibeb.net as an education opportunity for city-dwellers

“I actually wanted the website to be more colourful and have more pictures, so that women would feel like

it was aimed specifically at them,” Bezawit Worku explains. She founded the online educational platform Tibeb.net particularly for urban women who want more professional training. “However, too many pictures would also be bad, as it would use up a lot of data, which is still very expensive in Ethiopia.”

The website was launched recently with articles and instructional videos on topics such as health, computer technology and leadership. Worku produces the latter herself, and the articles are collected from other institutions. The site also reserves a prominent place for fashion. “Women also need to be attracted to the site with other topics,” the trained graphic designer explains.

“In general, the women who I speak to are fighting on three fronts: they have their work, their family and social issues.” For example, some women are active in organisations that collect donations when someone in the neighbourhood is ill or even dies. Worku pinpointed language as one of the major barriers for many women. Many women speak one of the 83 local languages, but not Amharic or English. For this reason, more and more teaching material is being offered in local languages.

ICT classes are obligatory at secondary schools, but half of all students have already ended their schooling by that point

Collecting old hardware in Europe and shipping it to Africa doesn't really seem to make sense if there is no parallel investment in computer training. Yared Ayele, one of the founders of the educational initiative Camara, explains that they brought 71,000 computers from Ireland to Ethiopia in five years, thousands more in 2016. It was only after a while, however, that they realised the importance of software – and, above all, of 'soft skills'. In response, they started a quick course in computing at the schools who received the hardware and also offered maintenance services. Since then, five teachers have undergone two-week training courses with Camara. It's not many, but it's much better than nothing. Meanwhile,

“Girls have to interact with ICT as early as possible.”

Camara is now also creating content that is delivered to the schools along with the hardware, such as digitised local schoolbooks, or an offline version of Wikipedia.

Although ICT classes are obligatory at secondary schools in Ethiopia, half of all students end their schooling between the ages of 13 and 14.

According to Yared, cultural norms are a main reason why girls in particular leave school early. They have to help around the house and have

no time for ICT. Furthermore, schoolchildren in Ethiopia are only taught in local languages until secondary school. After that, it's all in English, which also acts as a particular barrier for girls

when it comes to learning ICT. One solution? “Girls have to interact with ICT as early as possible. That doesn't just mean the continual demand of internet access, which doesn't actually help so much, but rather content that is created specifically for girls,” Yared says.

More and more information is being transmitted via traditional technologies such as radio

With such poor internet access in Ethiopia, other technologies have to be used to reach girls and women. The one which remains the most widespread is the radio. BBC Media Action has operated on the airwaves for many years, with programmes such as Jember and Biiftuu Jireenya that speak about subjects such as healthcare for mothers and children. The radio drama Filega is about HIV. “The men also have to be taken into account”, explains country director Alice Jenner, “whether it be modern technologies such as the internet and mobile communications, or classic ICT such as TV or radio, because they are usually the ones who decide what can be seen or listened to, and when”. When I met Jenner through mutual friends over dinner on the last day of my field research, I asked if that means that they talk about football in between other segments. “No,” she responds, “but men need to be addressed in any kind of explanatory programme equally to women, otherwise it unfortunately wouldn't work here. Otherwise, we would fail to reach many women with our radio programme.”



Germany

Lagging Digital Literacy

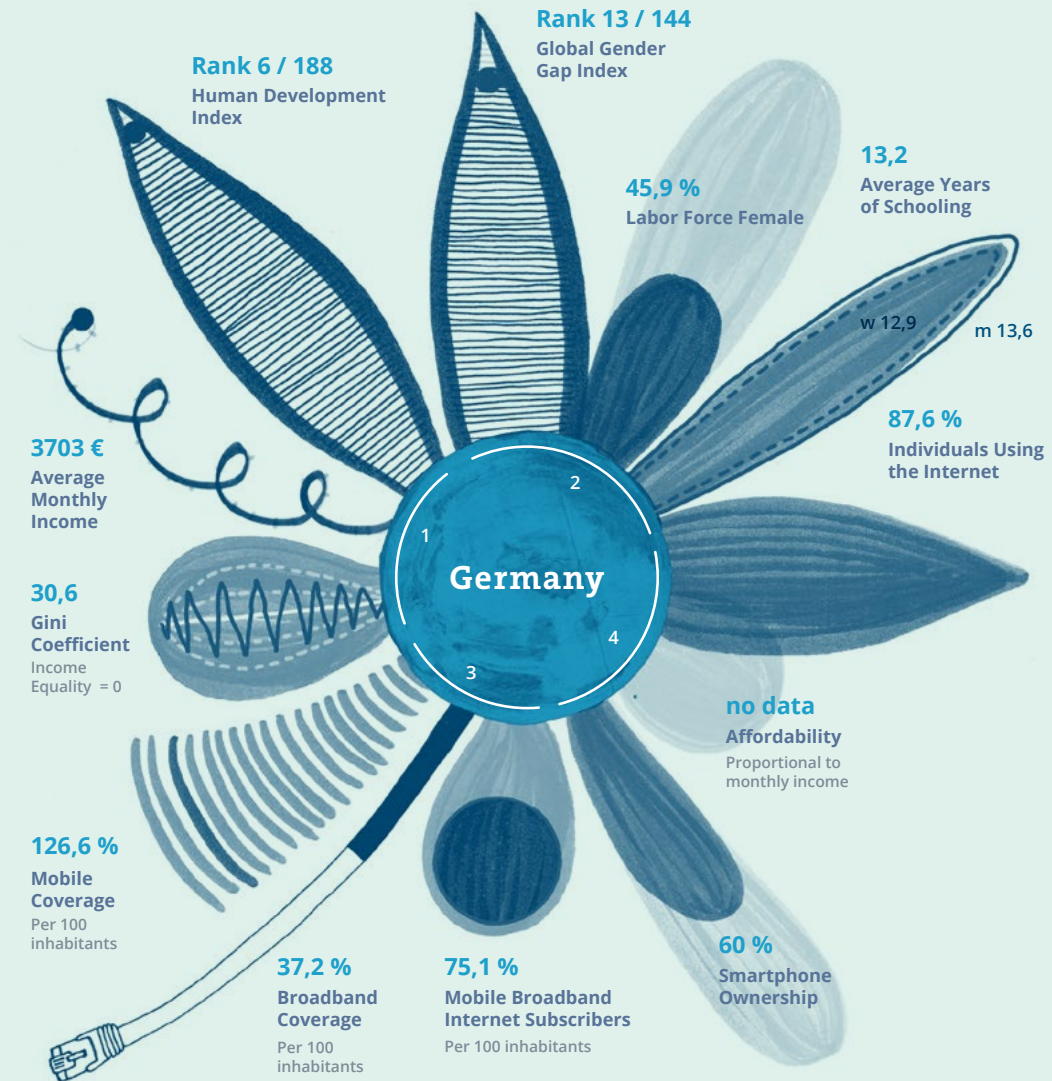
by Angela Ullrich



1. GENERAL DEVELOPMENT



2. GENDER DEVELOPMENT INDICATORS



3. ICT DEVELOPMENT INDICATORS



4. DIGITAL ACCESS

A grey day in February. My colleagues are travelling around sunny countries like Brazil and South Africa. I open my laptop. Is there also a 'digital gender divide' in Germany? I have the feeling that every woman I know is online: friends and colleagues, my students, and of course, my daughters. Even my aunts, who are both over 70, send me messages via WhatsApp. So how can there possibly be a gender divide?

That's the superficial view. But the playing field is not even when it comes to gender and the digital world. Technological infrastructure is rarely an issue anymore, with even the most remote villages enjoying at least basic internet access (despite the odd slow connection in remote villages in the Eifel region). There are various studies and figures – the International Telecommunications Union at- tests that 90 per cent of all Germans are online; an online study from ARD and ZDF has the figure at 84 per cent, and Initiative D21's findings indicate 79 per cent.

However, older women use the internet less often. And across all age groups, women lag behind in terms of digital literacy. Initiative D21's Digital Index shows that women have a more limited understanding of digital terminology like cookie or cloud, and less expertise in dealing with applications. On an international scale, Germany only ranks somewhere in the middle in terms of women's digital literacy.

Above all, it is unsettling that there are still very few women involved in

the development of Information and Communications Technology (ICT). Although a slight upward trend is emerging, female web product owners are a rarity. In Germany, only 15 per cent of all employees in mathematical and technical professions are women, and women constitute only

20 per cent of IT graduates. Women don't even make up one in ten ICT managerial positions. How is this being dealt with by politi-

cally-backed initiatives? The Digital Agenda provides guidelines; it is a national strategy, dividing the responsibility for finding solutions between various governmental ministries. However, the Federal Minister for Family Affairs Manuela Schwesig emphasised in a speech that these guidelines are genderless. Does this mean that women do not require specific support? I attempted to get in touch with the ministries that are dealing with this matter.

First I called Maren Heltsche, programmer and board member at Digital Media Women, a network for women in the German digital economy. "Women don't want to fight their way through an IT degree in order to end

Women make up just 15 per cent of all employees in mathematical and technical professions and 20 per cent of IT graduates.

up working in a completely male-dominated industry,” she said. “Women feel uncomfortable in such a work environment.” It’s not enough to simply motivate women to undertake IT studies; they also need to be encouraged to stay in the industry after completing their studies.

“A clear code of conduct and a good feedback culture can help enormously in terms of women feeling equal and safe in IT development,” stressed Johanna Lang, who comes from a different professional background and has recently started working as a software devel-

oper. Following her philosophy studies, she learnt how to program at Rails

Girls Berlin, where she is now one of the organisers. Rails Girls Berlin is the local subsidiary of a non-profit initiative that offers women’s programming workshops in numerous countries in Europe, South America and Africa. For Lang, the work environment also plays a crucial role: it should provide “knowledge transfer in a safe space, and an atmosphere that encourages, challenges, motivates, and enables women to overcome their fears and uncertainties – and to dare to program.”

Lack of self-confidence is an obvious hurdle. “Women often under-

estimate themselves and don’t think they are capable of taking on a role in a team, even though they can absolutely manage it,” said Hans Raffauf, co-founder of the company BioWink, which developed the menstruation and women’s health app Clue. He has noticed that in job interviews, women often thought themselves unsuitable for the job. Raffauf had to convince them of their capabilities.

Whilst lack of self-confidence is one element that feeds the digital divide, another is the lack of belief

in women’s skills. In Germany, it is still more difficult for women to obtain start-up

funding from private investors. This became clear to Nora-Vanessa Wohlert, who three years ago co-founded the women’s online magazine Edition F. “The investors and decision-makers at venture capital firms are mostly men. It is more difficult to garner interest in women-related themes because they would rather invest in issues that affect them personally. When it comes to women’s issues, we have to make much more of an effort to persuade them.”

Hans Raffauf’s experiences in the first rounds of funding for Clue were very similar. “There are maybe five

The start-up world is male-dominated

“If a project involves female founders in addition to a women’s issue, this becomes an even bigger problem.”

women who are directly responsible for institutional financing in Germany. The start-up world is male-dominated. And if a project involves female founders in addition to a women’s issue, this becomes an even bigger problem.” Meanwhile, eight million women across the world are using his app. Raffauf is convinced that Clue’s great success is due to the fact that there are so few competitors. The topic was simply overlooked by investors.

Phone calls and call waiting, E-Mails and out-of-office notifications

This is a key area where political intervention would be useful. There is public support for start-ups, and it is steadily increasing. But in the photo of the winners of the federal start-up competition ‘Digital Innovation’, only three of the 35 award-winners standing next to Minister Brigitte Zypries are women. I wanted to hear from the ministries about the political initiatives that are being

developed to close this digital gender divide. My phone calls were met with call waiting, my E-Mails received out-of-office notifications. After a number of futile attempts, I finally managed to speak with an employee at the Ministry for Women and Family Affairs. She was not able to assist me, but offered to find somebody who could provide me with information.

There are of course networks and hubs where women can share their experiences and help each other.

German women in tech meet up at

initiatives like Digital Media Women,

Women in Digital and Fintech Ladies.

They combine their strengths in order

to increase general

awareness of women in politics, economics, and society. "I have been to conferences where the women did not take the stage, but instead were shunted off into the adjoining room for a women's panel. And this had nothing to do with specialist knowledge," recounted Maren Heltsche. "If there are no women on the stage, then we also miss out on their opinions and perspectives."

Visibility is currently a major issue. There are many qualified women in tech who could serve as role models, but they are underappreciated in a broader social context. Daniela Döring

and Hannah Fitsch from the Technical University of Berlin ascertained in a study that top female technical performers in German museums are usually presented as unusual exhibits or as exceptions to the rule. The numerous stories about male inventors are often juxtaposed with only a small number of stories about women.

Women are almost entirely excluded from the halls of fame. Wage discrimination still exists in Germany. Women are paid roughly 20 per cent less than men for the same

work. The Federal Bureau of Statistics even found a wage discrepancy of 24 per cent in the ICT sector.

It is unclear

whether digitisation can bring about changes here.

But there are women who remain hopeful, such as Tijen Onaran. The PR consultant and initiator of the women's network Women in Digital is convinced that through digital development in Germany, "old, inflexible structures in companies will be reconsidered, and to some extent dismantled. New business fields are emerging in which women currently have a good chance to climb the ladder." Women would subsequently gain more influence and would perhaps receive fairer pay. Even though

Women in ICT jobs earn 24 per cent less than men

women still assume the largest share of the housework and are more often responsible for childcare, digitisation could at least improve the compatibility between family and career.

However, Francesca Schmidt from the Gunda Werner Institute for Feminism and Gender Democracy dampens this enthusiasm somewhat, highlighting the risks and potential fallouts. "Digitisation may offer opportunities, but that alone is not enough to bring about equality. The internet does not exempt us from solving the structural questions and problems in our society." Furthermore, she sees a grave danger in the fact that women are often exposed to vulgar remarks and hate speech on the internet. Although the working group Feministische Netzpolitik and the Council of Europe are currently fighting this issue with the campaign No Hate Speech, both have as yet failed to achieve very much: "We need very clear rules and legal protections," says Francesca Schmidt.

My investigation identified further topics and questions for my list of policy challenges. Despite my E-Mails and telephone calls, I still haven't received a response from the ministries. Evidently there is nobody working on the combined issues of gender equality and digitisation.



India

Women Only

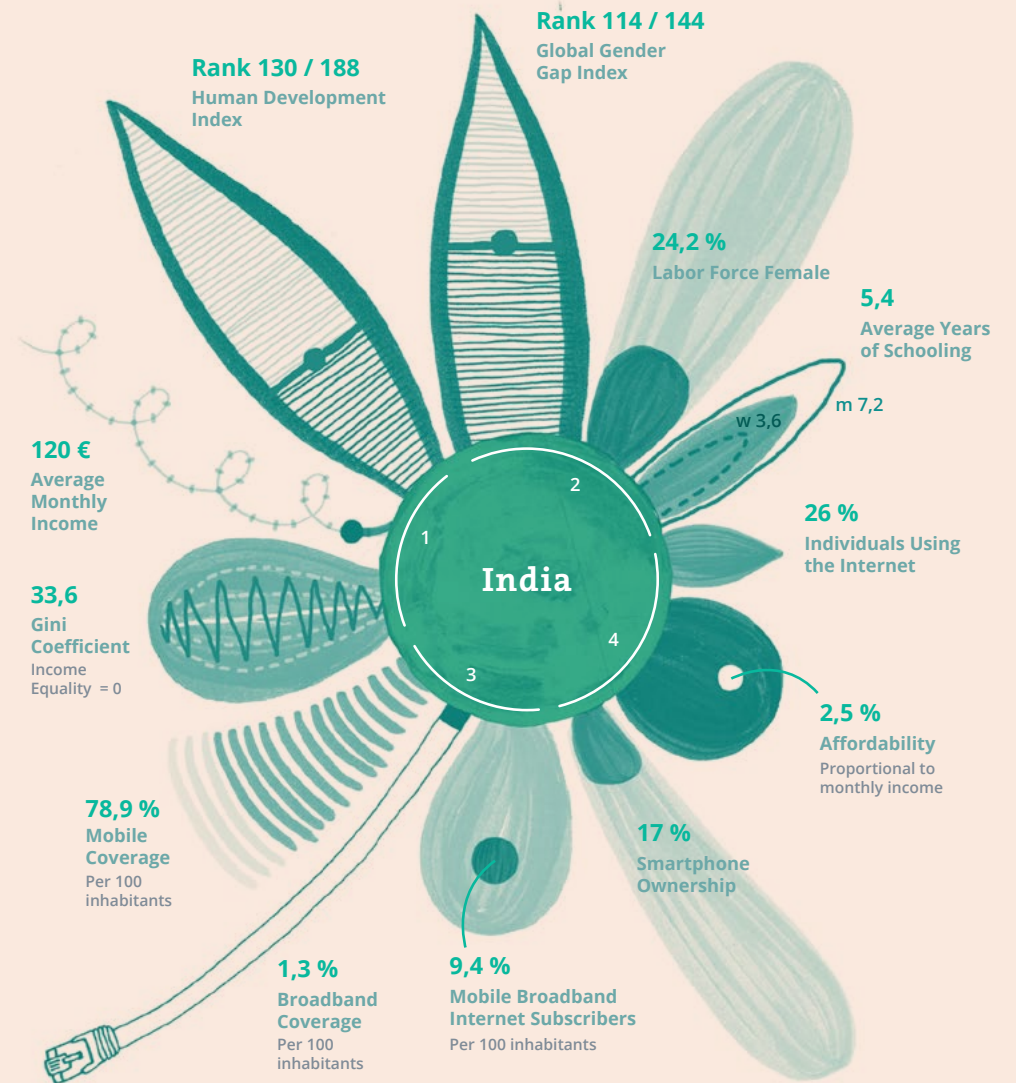
by Joana Breidenbach



1. GENERAL DEVELOPMENT



2. GENDER DEVELOPMENT INDICATORS



3. ICT DEVELOPMENT INDICATORS



4. DIGITAL ACCESS

Talking to Simran cracks my heart. I am in the basement of an NGO in South Delhi surrounded by a dozen young women. The furniture look thrown together, cables are protruding from the walls. Bend over laptops and cameras, the girls are working on a campaign against early and forced marriages in their communities.

All of them radiate energy and confidence, yet they describe being torn inside as they try to navigate the divide between the social expectations of their poor neighbourhoods and their own aspirations for a better life. Simran struggles to hold back her tears: “My parents are desperate to arrange my marriage. It’s all my mum talks about and sometimes, when I wake up, there is a man standing in front of me, checking me out.”

But Simran wants a career. With her 19 years she is thoughtful and good with computers, the other kids in the basement call her “the philosopher”. Declining marriage and pursuing a job would cut Simran from her family. She would be considered a “bad girl” and bring shame to the family.

The basement-lab is run by Feminist Approaches to Technology (FAT). Here they teach digital skills to girls and young women from poor urban areas. And they introduce them to a world in which girls are not inferior to fathers and brothers. A world in

which they do not have to tolerate early marriage and domestic violence. FAT encourages them to negotiate with their families and develop their own aptitudes.

The electronic-engineer Gayatri Buragohain started the NGO in 2010. Back then Gayatri tried to recruit girls by promising to parents that she would educate their daughters by both explaining their rights as much as teaching useful skills. After all, cultural conservatism, patriarchal values and rigid caste norms make India one of the least gender-equal societies in the world. The UNDP Gender Equality Index India ranks on place 130. Rape seems almost commonplace, misogyny runs through the political and judicial system. However, the parents were not interested in rights. They simply replied, “give those skills to our boys.” Buragohain does not try to argue anymore. She now tells the parents: “This is an NGO and we only take girls.”

In India 70 per cent of the population lives in over 600,000 villages. Access to internet is limited due to coverage and affordability. Despite staggering growth rates of the mobile-enabled internet, women make only

2 per cent of internet users in rural areas. And even if there is access, for women it is often made complicated. Many villages in India have banned unmarried girls from using mobile phones. Access for married women is highly restricted. Phones are perceived to threaten their reputation.

Despite staggering growth rates of the internet-distribution, women make only 2 per cent of internet users in rural areas

Families often have ‘male’ and ‘female phones’ – male phones offer two-way communication, are used for work, networking, entertainment. They have a contact lists, music and are secured with passwords, offering privacy. The “female phones” are not considered private possessions but household devices. They are mostly hand-me-downs, which can often only receive calls and are reserved for communication with kin and husbands. Mothers-in-law and village elders closely watch the use of these phones.

“Building confidence is as important as teaching skills,” Sujay Santra tells me. The founder of iKure, a Calcutta-based for-profit, developed a wireless system monitoring health incidents in order to improve rural care. iKure hands out smartphones and tablets to barely literate women in six Indian states. The for-profit initiative uses them to train women to become rural

health workers. The devices are used as a diagnostic tool, to gather data for individual treatment as well as to understand larger health patterns. “When we first introduced digital technology to women, they were very curious, but also very scared.

What worked well was to set up peer training. Women feel that ‘if

my peer can do it, so can I.

Much like Gayatri Buragohain, the iKure team had to overcome initial resistance from husbands and mothers-in-law. iKure persisted by stressing that employment offers chances for a livelihood and enables women to help others in the community.

Santra observed a transformation of the women. “Their standing within the community, bearing ID cards and technology, increases enormously. They really get out of the dark zone.”

Increasing women’s agency runs like a common thread through the discussions with activists, NGOs and – surprisingly – also tech companies targeting

female users. It appears to be the most important strategy for bridging the digital gender divide. Yet, it is a long stretch between the rural women, who are learning to use smartphones and co-working spaces, or offices of tech companies such as Maya and Sheroes in Bangalore and Delhi.

Increasing women’s agency is most important for bridging the digital gender divide

“When we started Maya in 2012, we launched in the US, Brazil and Mexico, but not in India. We felt women here were not ready to use an app which tracks their menstruation cycle.”

John Paul is the founder of Maya, we meet in a Café next to his Bangalore office. He tells me about the barriers women encounter when using technology specially designed for them: “There is a lot of stigma attached to menstruation and women have internalised that their own health is of lesser importance. When I brought up the topic five years ago, people wanted to hide under the table.”

But attitudes are changing rapidly and a year ago Maya successfully entered the Indian market. “Suddenly women are reclaiming their space. Smartphones are driving this change,” John Paul explains. It helped that the app-name was changed from Love-Cycle to Maya, which sounds Indian and has no sexual connotation. The app, which is modelled on a diary, feels private and establishes an emotional connection with its users.

More platforms, companies and communities have found that it helps to create “women-only” environments and emphasize community. Sairee Chahal runs Sheroes, a platform helping women to find employment. “When you go online as an Indian woman, all you find is ‘pink content’. Parenting advise, how to

lose weight and look good, gossip,” she tells me when we sit down in her Delhi office. “I wanted the internet to be a constructive and aspirational place.”

Community against virtual abuse

“Women want community,” Chahal explains. Users of Sheroes are immediately connected to a network of other women and to coaches who give advise. To Chahal’s surprise, the platform not only attracted well-educated professionals, but also rural women speaking local languages. In response Sheroes established a real time helpline run by female councillors from a similar social background. Here, the major pivot was closing the platform and making it exclusive for women. “There is so much online abuse,” Chahal explains, “that we felt the need to create a safe and clean space.”

Virtual abuse is another major barrier for women. A number of campaigns – such as Ready to Report, run by Amnesty International India – try to motivate women to report abuse and to convince law enforcement to take such complaints seriously. Successful measures also include the Woman Power Line run by the police in the state of Uttar Pradesh. The hotline allows women to report phone abuse. Police officers call the men and issue warnings or

make them take an oath on a local God not to harass a woman again. In some instances they call the offenders parents. Almost always, this settles the matter.

Developing spaces for women proves to be a successful strategy for institutions and companies. IT departments of universities as much as software companies and the nascent startup scene resort to it. When Vineel Reddy Pindi started the Mozilla volunteer community seven years ago, he noticed that there were hardly any women attending open source network events. "But we wanted to include women. So we created a special group and started university clubs at women's educational colleges. Today the tech events I attend have at least 20 per cent female participation and a number of women organisations have sprung up." Pindi refers to Girls in Tech, Women who Code or Hacker in Her.

No real digital policy

Various public initiatives in India work towards closing the digital gender gap, but many activists are highly critical of the governmental per-

formance. One of the critics is Anita Gurumurthy, CEO of IT4Change, an organisation devoted to digital equality. IT4Change monitors the initiatives aimed at bringing connectivity and basic technical skills to the whole of India and especially to rural Indian women.

Many such projects are run as private public partnerships. For Gurumurthy, these are "uncoordinated and democratically not legitimized. Many go

"We wanted to include women. So we created a special group and started university clubs at women's educational colleges."

against privacy concerns allowing citizen data to be accessed by private actors for their interest." Then there are initiatives, such as the hastily an-

nounced demonetisation of last November. While aiming to fight corruption and move towards a cashless economy it especially hurt women, who more often have no bank account but stow-away-cash.

No wonder Anita Gurumurthy presents a bitter outlook: "India has the intention to be seen as a digital leader in the world. But there is no real digital policy."

"India has the intention to be seen as a digital leader in the world. But there is no real digital policy."



Indonesia

A Huge Rush, but Hardly
Any Improvement
for Women

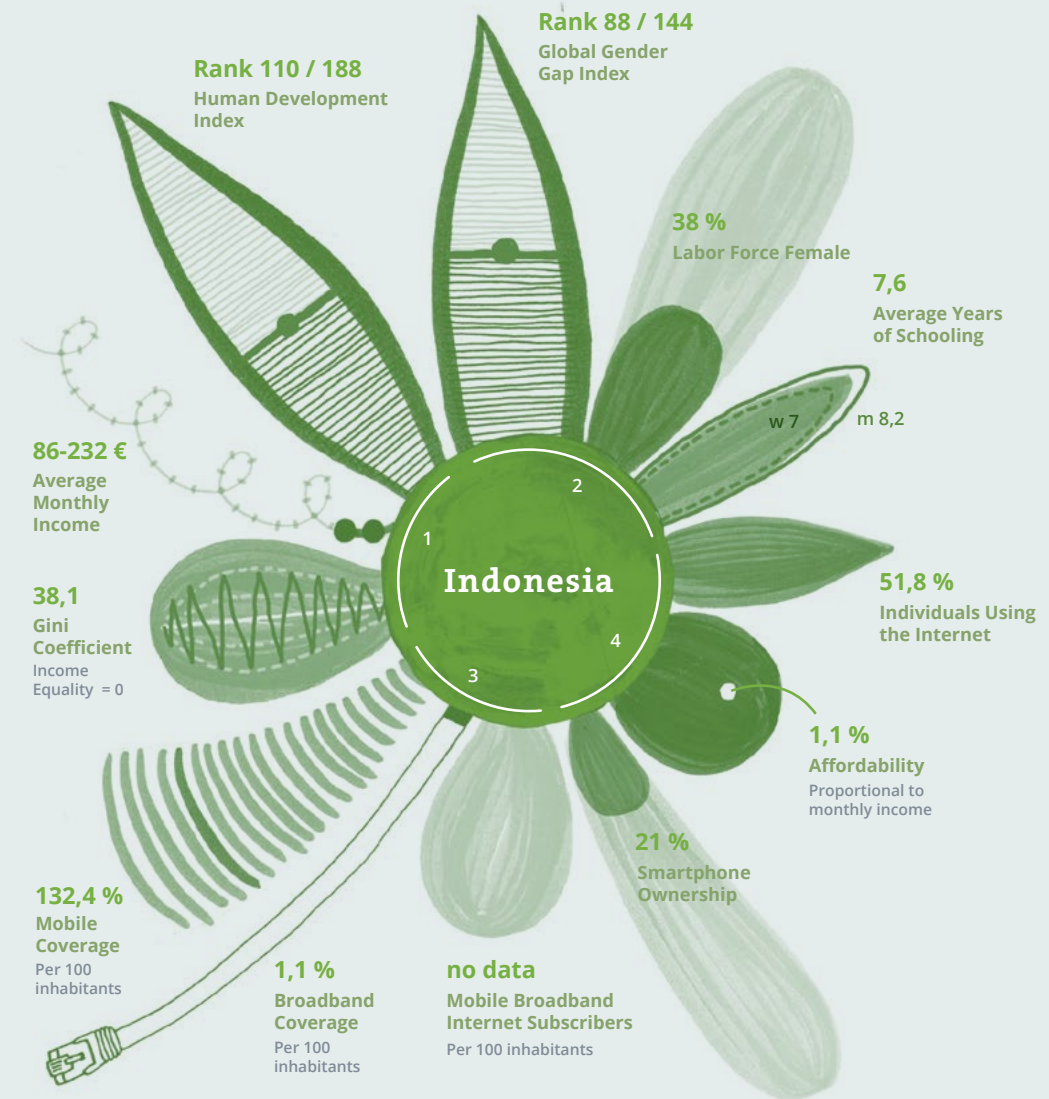
by Carolin Silbernagl



1. GENERAL DEVELOPMENT



2. GENDER DEVELOPMENT INDICATORS



3. ICT DEVELOPMENT INDICATORS



4. DIGITAL ACCESS

Green, green, everywhere – the logo of Go-Jek, the star of the Indonesian start-up scene, is emblazoned on scooter taxis, vans, courier services and food packaging. Using apps and digital accounts, Go-Jek delivers food, shipments, and beauty and wellness cures across large Indonesian cities. The company is valued at over a billion US dollars, and its app echoes the digital rhythm of the city.

Indonesia, of course, is more than just Jakarta. The country and its 252 million inhabitants are spread across the largest archipelago in the world – over 17,000 tropical islands formed by volcanoes and surrounded by stormy seas. Patchy infrastructure remains the largest hurdle to internet access. “In the countryside, you sometimes have to climb up a tree to get internet access on your phone”, laughs Ria Emunsari from Making All Voices Count. In the countryside, only the fields and the jungle are green.

Nevertheless, the internet is everywhere. There are 130 mobile phone contracts for every 100 in-

habitants. Cheap smartphones from China cost 30 dollars, and are no longer a luxury, even for the poorest families. The latest survey carried out by the Association for Indonesian internet Service Providers shows that 100 per cent of all Indonesians between the ages of 10 and 14 are regularly online. Over half of the Indonesian population uses the internet, a number that is set to rapidly increase: since the last survey at the end of 2014, a further 70,000 Indonesians have gained access to the internet every day, now numbering some 50 million users in total.

This dynamic increase has several causes: Indonesians profit from a good

internet-connection via submarine cables, and there are lots of mobile phone network providers fighting for customers with cheap prices.

And Indonesia represents fertile ground in this battle for customers. “We have the largest generation of millennials in the world”, explains Veronika Linardi. She is the founder of the job platform Qerja.com and jobs.id. In addition to this, the country’s young president, Joko Widodo – who is often compared to Barack Obama – is invested in cultivating Indonesia’s digital future. Nationwide broadband access by 2019 is only one of his ambitious technological goals. Indonesia is moving headlong into a digital future.

Women and girls, particularly in the countryside, are structurally disadvantaged in terms of access to the internet

And women are coming along for the ride. The space to do so is provided by the traditional gender roles of this Muslim-majority society. “Kodrat wanita”, to keep house and raise the children – remains the primary social responsibility for an Indonesian woman. And while they are looking

after the household, women are mostly at home – and on their smartphones, which have become accessible to mothers often due to

Since 2014, a further 70,000 Indonesians have gained access to the internet daily – users now number some 50 million

the help of their children. In the evenings, daughters have much less freedom to leave the

house than their brothers, meaning they spend their time online. Women usually develop their career paths around their families. One such woman is Widuri, who oversees the Women’s Rights Online project at the NGO ICT Watch. Her name comes from her father, who was not only a fan of the famous 1970s song with the same title, but “did not want to ruin it with a last name.” Widuri has been an activist from a young age: “At college I was active in the women’s rights group. Then came marriage and children, and I got older, but my passion for gender issues remained. Now the children are old enough and I have time to work.”

Digital literacy is not yet being taught in Indonesian schools, however. Even if they are allowed to surf the web, a detailed discussion of technology and its possibilities is not considered appropriate for girls. Unlike their brothers, they do

not have access to informal learning spaces. This means that many women lack the awareness of the potential the internet holds for them, and the ability to use it productively. If you looked at the smartphones of young women in Jakarta's plethora of malls, you'd find plenty of 'pink content': chats, Facebook and dating apps.

Start-ups reproduce classic gender perceptions and focus on 'millennial mums'

There are other barriers, too, as the start-up Prosehat.com shows. Gregorius Bimantoro and Agnes Susanto, both doctors, want to use Prosehat.com to overcome supply shortfalls for prescription medications. "The 'millennial mum' is our primary target group", they say, describing their customers as affluent, urban and well educated. Along with medication, they also sometimes add cosmetics to their shopping baskets, and the 'millennial mum' seems easy to reach. "We have enough customers in Indonesian cities, for now," Susanto says, "and the rural population will come later". This is the view taken by most start-ups.

Online content in Bahasa Indonesia, the national language, is still limited, and the majority of it is related to life in cities such as Jakarta, Bandung and Yogyakarta. If the Indonesian

internet community develops content for women, then it is with a limited scope. Although internet access for poorer people living outside of the well-developed, economically and politically dominant island of Java may be improving, the quantity of content relevant to a rural population is still sorely lacking.

With Wobe, women can trade in mobile data

Pioneers seeking to change this are still rare, but Citra Savitri told us about one such beacon of hope. Her app is intended to turn women into entrepreneurs within a few minutes. Wobe, the social enterprise where she works, deals with large volumes of mobile data. Users buy Pulsa phone credit at low prices and sell amongst their social networks at a profit. The app also works even on old smartphone operating systems and shaky 3G connections, and is well suited to the common balancing act that many women have to master between their household commitments and their wish to add to their husbands' incomes.

For ten years, Pikel Indonesia has been beating a new path in the batik industry. Women have traditionally set the tone for batik production, and the Batik Fraktal programme makes it possible for them to docu-

ment designs for the material, and create new ones with the aid of algorithms. Pikel Indonesia also supports the distribution of products via e-commerce and online marketing. "Our technology not only empowers women and their small production companies, but also maintains our cultural heritage and

women, albeit indirectly. In 2012, the country jointly initiated the Open Government Partnership, an international club of governments that want to improve their decision-making and make their work more transparent through the use of open data.

Since then, Indonesia has been a pioneer in the field. This commitment is having an im-



Indonesia has been a pioneer in the making their work more transparent through the use of open data.

supports the batik industry as a whole", says Muhammad Lukman, the IT developer behind Batik Fraktal.

The Indonesian government supports the country's digital development, which is also good for women

The Indonesian government is also supporting the digital inclusion of

pact in all areas of the country, which can be felt even in its 74,000 villages. The OGP forms part of the national development plan which aims to connect all villages to the internet, and to publish online information about institutions and administrative decisions. Through this, the government is making online content available which has everyday relevance for the rural population.

Diastika Rahwidiati calls this ‘data readiness’: “In Indonesia, we have moved beyond curiosity and openness – now we are on the way to real data competence”. At the same time, the research leader of Pulse Lab Jakarta is careful to note that it does not apply to all ministries and all villages, but that “there are, here and there, bright sparks of hope”.

Take Tunjuntirto, for example, a small town of 10,000 inhabitants in east Java. In principle, the population in such places participates in budgetary planning once a year. This meeting is known as musrenbang, which is a mixture of data collection, village gossip and discussion. Women are traditionally under-represented in this process – they don’t attend the meetings, and there is traditionally little effort to include women’s interests.

Suara Kita – our voices – collected the budgetary views of women

The village leader in Tunjuntirto wanted to change the situation – undoubtedly in part because she herself is a woman. Her method of choice is the mobile phone. The much-observed pilot project Suara

Kita (Our Voices) used an SMS survey to collect the views of 300 women on the most important decisions. This experience led to more women taking part in the public discussion than ever before.

Because the private sector hardly invests in the digital inclusion of women in rural areas, it is up to civil society and public authorities to develop services for issues and solutions which affect them. Only in this way can digital technology in regional areas become more than an instrument for entertainment and communication.

“I have already been to prison for my beliefs – I am no longer afraid”. But she is still furious. Gadis Arivia, 53, publisher of the feminist magazine *Jurnal Perempuan*, and one of her country’s leading experts on gender issues, has just come from the gym. Martial arts helps her to vent her anger on occasion.

Since the late 90s, when Arivia was helping to bring down the Suharto dictatorship, Indonesian women have claimed a lot of freedom and self-determination. Until recently, Arivia was not able to use the word ‘feminism’ in her academic work. Today, her course on gender studies at the University of Indonesia is packed.

“I have already been to prison for my beliefs – I am no longer afraid”

Under pressure from a more fundamentalist form of Islam, traditional gender roles are becoming more dominant again

However, there is still a lot to be done, both online and offline. The pressure of a fundamentalist form of Islam on Indonesian society is increasing, and the number of well-educated women who abruptly end their successful career paths after having their first child is once again on the up. Traditional gender roles are becoming more dominant, childcare has no governmental support, and sexual harassment is still par for the course, both on Facebook and on overcrowded commuter buses.

The case of Indonesia shows that although the internet can empower women, it can also weaken their position. For a digital future, technological equality has to go well beyond the question of physical access.



South Africa

Men In Ill-Fitting Suits

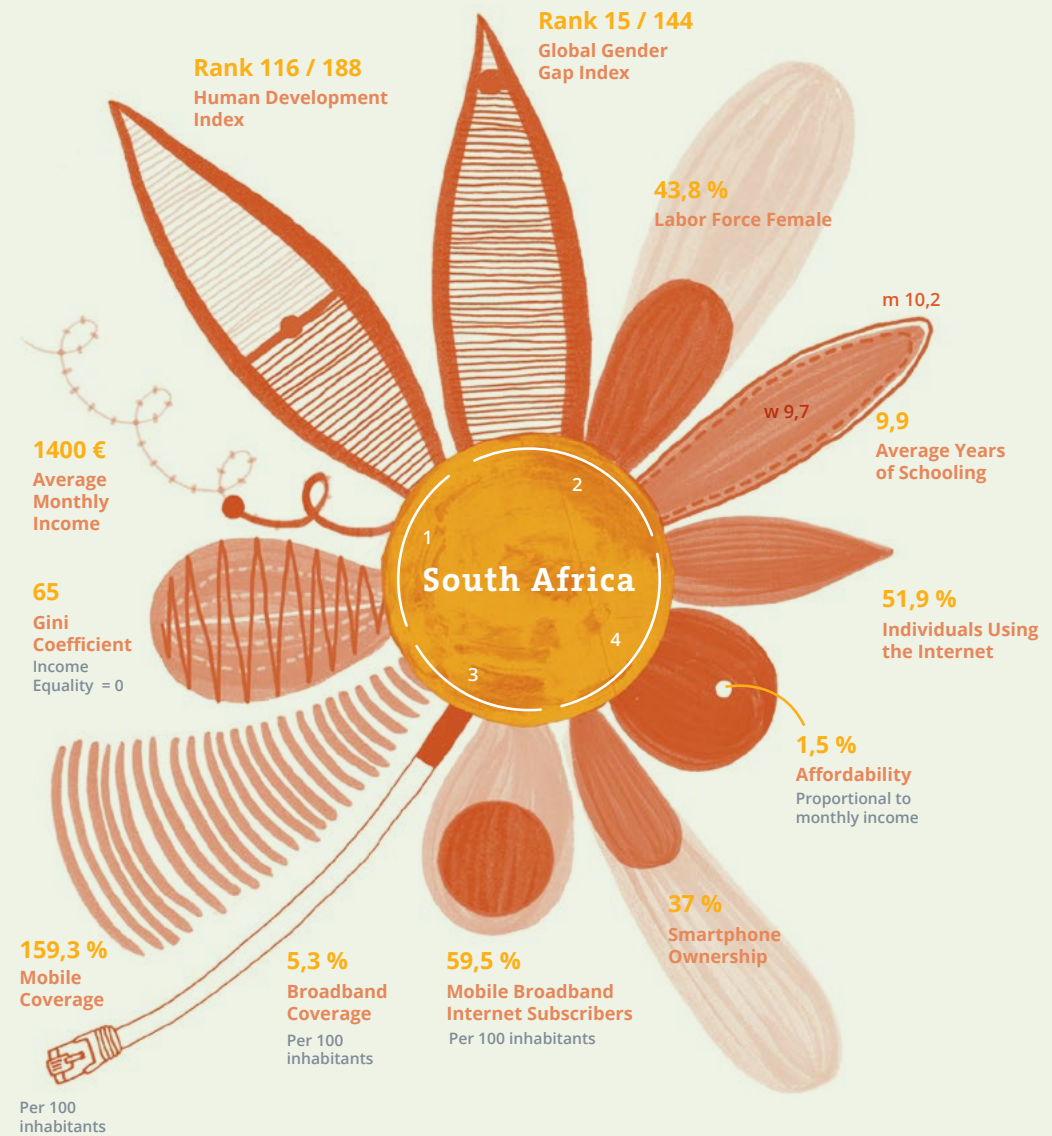
by Franziska Kreische



1. GENERAL DEVELOPMENT



2. GENDER DEVELOPMENT INDICATORS



3. ICT DEVELOPMENT INDICATORS



4. DIGITAL ACCESS

Shortly before landing, we pass over mountain ranges and green fields. Settlements of corrugated iron shacks, cut through by a grid of dusty red streets, are opening out beneath us. Skyscrapers are sparkling off in the distance. After Nigeria, South Africa has the strongest national economy on the continent. It's a place that attracts thousands of economic refugees from countries like Somalia, Burundi and Zimbabwe. But jobs, safety and a better life are not within everyone's reach, because the country's relatively high gross domestic product primarily benefits a small, mostly white upper class. The richest 20 per cent of the population make up nearly 70 per cent of the national income. According to the 2013 Gini index, South Africa is marked by a profound social divide, ranking 4th on the list of the most unfair national economies.

More than 50 per cent of young women between the age of 16 and 25 are unemployed, which constitutes a quarter of the country's population. Their prospects are dreary. More than half of them live below the poverty line. More than a third of the country's 50-million-plus inhabitants has to make do with less than 3.10 US dollars a day. Most of them are black.

This is the context. Turkish Airlines flight 38 from Istanbul to Cape Town is gently touching down. These are the conditions affecting internet access for women.

From the airport it's a short distance to Woodstock Exchange, a co-working space where I meet Baratang Miya. She's the founder of Girlhype, a sort of learning workshop which aims to teach young girls from Cape Town's townships to code. Miya is well-known in the scene, and also more broadly. In various interviews she has argued for the empowerment of women in the tech sector.

That's exactly what her own project is trying to do. After school or during

**Prospects for women:
more than 50 per cent live
below the poverty line**

the holidays, young women are programming software. If they enjoy it and want to hone their talents, Girlhype can provide sponsorship and arrange for internships at companies.

Some even end up with permanent jobs. It's a rare chance for women – otherwise they would have to study,

which is expensive in South Africa, and out of reach for the vast majority of women from the townships.

In rural villages nothing resembles an economic powerhouse

"There are not enough initiatives like Girlhype," Miya complains. Especially in the countryside, there are hardly any initiatives that introduce young women to the internet. The villages often even lack electricity or running water – and therefore have little that reflects the country's image as an emerging economic powerhouse. If they do go online at all, village residents tend to use mobile phones, with several families sharing a single smartphone.

Cultural barriers to internet access for women are also common in rural areas, because in them, men call the

shots. Women have to ask for consent, and even when they are online, they're watched by men. "Sometimes they're allowed to use Whatsapp," explains Chenai Chair, who works for the Research ICT Africa institute. She has conducted several surveys on the internet use of women in villages and cities. "South African women are almost entirely dependent on their husbands. This also applies to their internet use." Many women even refrain

from using Facebook, Twitter, or Instagram.

They're afraid of getting too close to male strangers; even

friendly comments are problematic. "Making contact can cause them serious trouble," says Chair.

Besides this, internet access is expensive. On average, one gigabyte costs five US dollars, which is quite a lot when compared to the average income. In some neighbouring countries, the same amount of traffic costs only a fifth of this price. This is also why expenses for internet use make up between five and 20 per cent of family incomes in South Africa. And, traditionally, women are only able to contribute a small amount to this income – their responsibilities are mostly restricted to the kitchen and kids.

Looking at the country as a whole, we find at best a porous patchwork of plans and ideas.

There is no clear government strategy for digitisation

The high prices for internet access are a topic of discussion in newspapers and on radio programmes. Last autumn, the online activist Thabo "Tbo Touch" launched the Twitter campaign #DataMustFall, which was intended to put pressure on mobile service providers. But the initiative fizzled out because Molefe had spread incorrect figures, and because

the government was hesitant to crack down on the powerful internet providers. Currently, four mobile service

providers have brought the market under their control and secured dominant positions.

Furthermore, Jacob Zuma's government has failed to develop a clear strategy for digitisation. Although in autumn 2016 the government announced a National Integrated ICT White Paper, including strategies, proposals and concepts, nothing has been implemented. There are no scalable programmes on a national level, and the conditions for implementation are lamentable.

Looking at the country as a whole, we find at best a porous patchwork of plans and ideas. Regions supporting

individual initiatives and, occasionally, government departments pushing information and communication technologies. The health department promotes MomConnect, a messaging service that notifies pregnant women on upcoming appointments or provides them with information on their baby's stages of development.

"This service is used in almost all parts of South Africa," Hasina Subedar tells me on the phone. She works as a tech consultant for the health department, which has lately presented more websites and apps such as B-Wise! and made information on health issues available to young women and men. "These will be grouped together under the new umbrella campaign She conquers."

Initiatives for young women are sporadic

However, most South African women have to teach themselves how to make use of such offers. The vast majority of public schools do not provide computer courses and lack equipment and stable internet connections. And the courses offered by the few public schools that include computer skills in their curricula are often out-dated.

Apart from coding initiatives like Girlhype, there are other private initiatives such as Connect to Learn,

an educational programme that aims to familiarise school girls with the internet as a source of information. In the next step, the girls are supposed to learn how to navigate the internet responsibly and safely.

Like so many other female activists who tell of similar problems, Baratang Miya has to roll her eyes: "There are almost no female role models in schools, let alone in the tech sector." We are sitting in a co-working space that is sponsored by a bank. Somewhat desperately, Miya looks out the window at the rising slopes of Table Mountain and tells me how steep and stony the path is for women. Technical subjects and the sciences are hardly ever taught by women at schools, just as technology is almost never associated with women in the country. "And yet they could motivate young women and make sure that we reach something resembling equal rights when it comes to technology!"

Women suffer constantly from verbal aggression

Additionally, verbal violence on South African websites is escalating. Women face hostility when they seek advice on health issues or information on the use of condoms. Jean Armstrong, who is responsible for the online magazine Choma that is co-financed by GIZ, explains that

such an atmosphere is particularly cruel for young women. “The girls feel insecure and threatened. They rarely have the courage to raise their voices.”

As a result, some initiatives have decided to cater exclusively to women, while others have established online safe spaces and platforms for women. “This is currently one of our most important women’s issues,” states Sorayia Verjee, head of business development at Every1mobile. The organisation develops mobile websites, their apps and webpages rely on simple designs aimed at maximum usability. “In the development phase, we perform target group analyses to make sure that both our designs and our contents meet women’s needs.”

Choma has established safe spaces where women can be among themselves and where a moderator takes care of the netiquette. In these spaces, women can seek advice from each other or from experts. The forums provided by Choma are aimed at young women and allow them to discuss love, sex and lifestyles, and to obtain information on HIV/AIDS prevention. “HIV is still a huge

problem in South Africa. Every week, around 2,000 women are infected,” Armstrong explains.

Men in ill-fitting suits have the power

In South Africa, it’s not only hard for women to learn about the internet or to navigate it safely; work environments in the tech sector are

also difficult terrain for women.

Samantha Perry has launched the website Women in Tech, and likes to talk about the power of men in ill-fitting suits,

who often also have bad manners. “I would almost say that the South African tech sector is misogynistic,” Perry declares, looking indignant. Women are under pressure due to traditional family models. The compatibility of family and work is not something that start-ups or established companies take into consideration. Meaning the tech sector leaves young mothers out in the cold.

Table Mountain is lit up by the setting sun; the office is growing quiet. Miya packs her bag and sets off for the next interview. “We don’t

“I would almost say that the South African tech sector is misogynistic.”

just have to make technology more accessible for women”, she says, “we also need to give them the opportunity to shape this technology. We have to create new and better products for women. Otherwise the digital divide is not likely to close any time soon.” The last rays of sunlight trickle through the windows, and suddenly, realising that women in South Africa have a long way to go lies heavily over the mood in the room. The hollow notion of patriarchal culture still resonates faintly across the linoleum floor – in this light, the calls for more infrastructure and cheaper data almost seem like a tranquil evening stroll.

Conclusion

Differences Structure Access

For our research, we travelled to six countries in which socio-economic development, levels of digitisation or gender equality are fundamentally different. Four of these societies rank near the middle of the Human Development Report Index. The average monthly income ranges from 120 US dollars to 3,900 US dollars a month. Germany is in the top 10 of these rankings, while Ethiopia comes in near the bottom of the table.

In rural regions of India or South Africa, internet access is often a luxury good, not unlike electricity and clean, running water. In Ethiopia, there is only one mobile company that provides internet and mobile data, and barely a quarter of the population has access. In Indonesia, for every 100 inhabitants, there are 130 mobile phone contracts, with 100 per cent of all Indonesians between ten and 14 years old regularly online. Since the end of 2014, an average of 70,000 more Indonesians have logged on each day.

In these societies, there are significant differences in the legal, economic and cultural position of women and girls. Whether and to what extent women benefit from the process of digitisation depends on these initial conditions in the different countries. In India, where gender equality is less pronounced, women are often only allowed to use shared mobile phones, with the ability to use a mobile phone in privacy being a privilege reserved for the men of the household. In South Africa, primarily in rural areas, men control which services and apps their wives use. In Ethiopia, it is estimated that significantly less than twelve per cent of women have access to the internet, and they account for only 15-20 per cent of SIM cards. In Ethiopia, there are lots of barriers to gender equality. Almost two-thirds of Ethiopian women are illiterate, they are among some of the poorest people in the world, they are rarely able to speak English, and they

leave their homes less often than their husbands. In Germany, on the other hand, access to the internet is not a problem at all. Whether or not women are able to fully exploit the potential of the internet depends primarily on their digital literacy, which varies widely between different age cohorts.

Access to, and interaction with, the internet is structured by differences between rural and urban areas, between age cohorts and income and ownership categories. In addition to the overarching macroeconomic conditions of a country, there are other indicators which play a crucial role, influencing whether and how the target group of women use the internet and communication technology, and what impedes their inclusion. An overview reveals a diverse picture: although a young woman from Jakarta's middle class might negotiate the net with the same dexterity as a woman of the same age in Munich, she might use different tools and have access to different products and services.

Recurring Themes and Clear Demands

There are a number of recurring themes in relation to this complex situation – challenges and barriers which women in various countries

have to confront and overcome. This is where political movements and civil society can get involved, by promoting the digital inclusion of women and creating equal opportunities to allow women to access, use and shape these technologies, enabling the internet to become a useful tool for all genders.

The UN Broadband Commission for Sustainable Development and the World Wide Web Foundation have drawn up a number of key recommendations, the relevance of which we were able to confirm during our travels through various countries.

In summary:

- Physical barriers which impede women's internet access must be dismantled. This includes high communication and data costs, as well as the necessity of creating safe spaces for women where they can use computers and go online.
- Gender-specific data on internet access and use needs to be systematically gathered, tracked and processed. This data needs to be transparent and able to be used for national policies.
- Digital literacy needs to be added to school curricula. This applies equally to both primary and secondary education, and to girls and boys alike.

- Politics and legal frameworks need to support digital inclusion, both in theory and in practice. Gender-conscious digital strategies and legal protections must be used to prevent sexualised violence on the net.

Our analysis of day-to-day realities of female digital inclusion, of start-ups, social organisations and tech-based NGOs revealed to us where particular forms of action would be both possible and important. It suggests where development policy and funding institutions can intervene in order to fill the gaps in gender-specific access to digital technologies.

Findings and Recommendations

1. Understanding the Socio-cultural Contexts of Women.

The lived realities of women are diverse. Patriarchal cultures often stand in the way of women and girls studying and developing technological skills. These patriarchal barriers take on different forms in Indonesia, to the forms that are present in Brazil or Ethiopia. In Germany too, the tech sector is still rife with sexist remarks, women are excluded, and start-ups and corporations make little effort to accommodate a balance between work and family life.

Whether it's through workshops teaching digital literacy, or an app that guides users through their pregnancy and childbirth, digital products and services aimed at

strengthening women must understand their contexts and needs. Providers need to understand the sociocultural circumstances of their respective female target markets, identify gatekeepers and incorporate both into the process of developing and designing programmes and products.

Recommendations:

- Involve the target group in the development of products and services: user-centred design should be the basis for every intervention;
- Don't just work with women, but with gatekeepers as well – with parents, husbands, mothers-in-law, teachers, village elders;
- Even for international projects, region-specific solutions need to be developed.

2. Beyond Pink Content

It isn't just barriers to access and a lack of skills. The products and services currently available can also impede access to the internet, because they often are not tailored to meet the specific needs and interests of women. Tips for small-business owners, information about local politics and institutions, and advice and education around issues of health or financial participation are not available in local languages, particularly in developing regions.

Often, professional middle-class women from major cities form the target market for digital products and services. In developing countries, incomes outside of this target market are very low, and there is little motivation for businesses and start-ups to cater to them. Websites, apps or platforms which are useful for the inhabitants of rural and impoverished regions, are often viewed as unprofitable.

That's why civil society has to be supported even more extensively. Government bodies need to become more active and focus on these gaps in service. Only then will an internet develop which has relevance for the lived realities of disadvantaged women; only then can their occupational roles and economic participation be improved.

Recommendations:

- Civil society and socially-minded companies with relevant online content for women should be identified and supported;
- Public information at the local government level should be distributed online;
- Products and services that are tailored to the lived realities and working conditions of women should be supported. Providers of online services for women need to be motivated to carry out comprehensive target group analyses and to tailor their services to the needs of women. Education programmes must incorporate time limitations and sociocultural considerations.
- For the development and design of online services and products, gender-diverse teams should be strategically sought out and promoted.

3. Learning and Surfing in Safe Spaces

Successful programmes for promoting the digital participation of women take into consideration not just how technological competence can be improved, but also how to increase their confidence and self-esteem. When faced with a question or problem, women often seek advice from their peers, meaning they learn particularly well from one another.

The digital head-start which younger women have can be utilised if daughters teach their mothers how to use programmes and applications, as well as teaching them about data security. In secure, moderated, women-only spaces, users ask questions and discuss problems which they would otherwise tend to conceal. In societies which impede the political participation of women, digital discussion rooms can provide users with their first experience of debate. This promotes the development of confidence and self-esteem, which can be transferred to the analogue world. It creates the courage to become active and advocate for their interests. Another important factor is that peer-to-peer services and private digital spaces protect women from the kinds of verbal sexual violence to which they are exposed in open online forums.

Recommendations:

- Promote secured digital spaces for women;
- Use peer-to-peer approaches in education programmes for digital communities;
- Train platform moderators who promote gender awareness, but also support anti-discriminatory guidelines and laws.
- Consistently prosecute online violence against women and set up simple reporting systems.

4. Promoting Research, Improving Dialogue

Data on the behaviour patterns of women on the internet, about which products and services interest them, is still very patchy. In order to overcome digital disadvantage, to open up the internet for women and girls as a developmental opportunity, attention needs to be paid to the situation, and strategies need to be developed to tackle it. In this context, research activity, data collection, politics and development aid organisations need to come together.

There is a lack of qualitative research in comprehensive, internationally comparable investigations. These are necessary to provide political decisions and funding frameworks with a reliable foundation.

Recommendations:

- Promote qualitative research and support its institutional adoption.
- Data needs to be collected more frequently in order to reflect the speed of digital transformations.
- Dialogue between participating research institutions and think tanks must be improved.

5. Promote and Improve Visibility of Role Models

There are too few female role models in the tech sector. That is as true for South Africa as it is for Brazil or Germany. It has been proven that women feel encouraged and empowered as soon as they see other women involved in the design of technology and the development of solutions, women who are improving conditions for themselves and for others. Positive experiences or advice can strengthen the confidence of an entire community.

Women need to be able to see how other women design applications, programmes or websites, and advance digital innovation, and in doing so, improve their own lives and the lives of others. Through this, digital technology can resolve its gender imbalances as a medium and become a tool which is available to all people equally. Only then will the masculine tech sector change.

Recommendations:

- Support projects which encourage women and girls to develop technology;
- Train women to teach technology in schools and universities;
- Strengthen girls' freedom to choose what they want to focus on in their use of technology.

Strategies for Combatting Disadvantage

The digital inclusion of women needs to be a constant item on the political agenda, both in national plans for technological development and in development aid policy. Only then will promotional programmes be able to bridge the gap between gender equality and digital development, in order to develop targeted interventions and scale successful approaches.

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Brazil

Gabi Agustini, Olabi, <http://www.olabi.co/>, Rio de Janeiro
Alice Freitas, Rede Asta, <http://www.redeasta.com.br/>, Rio de Janeiro
Adriane Gama, Coordinator Coletivo Puraqué, <http://puraque.org.br/>, Pará
Debora Leal, IDDS Amazon, <http://www.iddsamazon.org/>, Pará
Natália Mazotte, Genero e Numero, <http://www.generonumero.media/>, Rio de Janeiro
Lorraine Porciuncula, OECD, <http://www.oecd.org/>, Paris
Alda Rocha, Codamos, <https://www.meetup.com/de-DE/Codamos-Club/>, Sao Paulo
Tiana Vilar Lins, Womanity Foundation, <http://womanity.org/>, Salvador
Denice Santiago, Police, Salvador

Ethiopia

Feleg Tsegaye, Founder Deliver Addis, <https://deliveraddis.com>, Addis Abeba
Hohete Arefeaine, Consultant, Addis Abeba
Selam A. Kebeda, Associate for Africa Seedstars, <https://www.seedstarsworld.com/event/seedstars-addis-ababa-2016/>, Addis Abeba
Hiwot Bishaw, Chapter Leader Woman in Tech Africa, <http://www.womenintechafrika.com/>, Addis Abeba
Haimanot Anbesaw, Software Developer, Addis Abeba
Alice Jenner, Country Director BBC Media Action, <http://www.bbc.co.uk/mediaaction/>, Addis Abeba

Nebiyou Yirga, Manager Splash Interactive, <https://www.facebook.com/Splash-Interactive-113574085340330/>, Addis Abeba
Yared Ayele, CEO Camara Education Ethiopia, <http://camara.org/eth/>, Addis Abeba
Yohans Wodaje, General Manager Telemed Medical Services, <http://www.helloctoethiopia.com>, Addis Abeba
Bezawit Worku, General Manager Edmonia ICT Solutions (Tibeb.net), <http://tibeb.net/>, Addis Abeba
Fassika Fikre, Founder m-Tena, <http://mitmita13.wixsite.com/mtenaeth>, Addis Abeba
Tizzita Tefera, Founder m-Tena, <http://mitmita13.wixsite.com/mtenaeth>, Addis Abeba

Germany

Maren Heltsche, Digital Media Women, <https://digitalmediawomen.de/>, Hamburg
Johanna Lang, RailsGirls Berlin, <http://railsgirlsberlin.de/>, Berlin
Tijen Onaran, Women in Digital, Startup Affairs, <http://startup-affairs.de/>, Berlin
Hans Raffauf, BioWink, <http://www.helloclue.com/de/index.html>, Berlin
Francesca Schmidt, Institut für Feminismus und Geschlechterdemokratie Heinrich Böll Stiftung, <http://www.gwi-boell.de/de>, Berlin
Gunda Werner, Institut für Feminismus und Geschlechterdemokratie Heinrich Böll Stiftung, <http://www.gwi-boell.de/de>, Berlin
Nora-Vanessa Wohlert, EditionF, <https://editionf.com/>, Berlin
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Users of the app Clue, <http://www.helloclue.com/de/index.html>
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Nils Altland, Liquid Democracy, <https://liqd.net/de/>, Berlin
Ina Froehner, Dawanda, <https://de.dawanda.com>, Berlin
Nicolas Rück, Wikimedia, <https://www.wikimedia.de/wiki/Hauptseite>, Berlin

India

Mridu Kamal, FAT Feminist Approaches to Technology, <http://www.fat-net.org/>, Delhi
Gayatri Buragohain, FAT Feminist Approaches to Technology, <http://www.fat-net.org/>, Delhi
Sujay Santra, iKure, <http://www.ikuretechsoft.com/>, Calcutta
John Paul, Plackal, <http://plackal.in/>, Maya App, <http://maya.live/eng.html>, Bangalore
Jyoti Ramnath, early adopter Maya user, <http://maya.live/eng.html>, Bangalore and San Francisco
Gopika Bashi, Amnesty International India, <https://www.amnesty.org.in/>, Bangalore
Manasi Soni, Dasra, <https://www.dasra.org/>, Mumbai
Jigyasa Grover, Women who Code, <https://www.womenwhocode.com/>, Delhi
Vineel Reddy Pindi, Mozilla, <http://mozillaindia.org/>, Hyderabad
Sairee Chahal, Sheroes, <https://sheroes.in/>, Delhi
Darshana Radhakrishnan, ThoughtWorks, <https://www.thoughtworks.com/>, Bangalore
Anita Gurusurthy, IT for Change, <http://www.itforchange.net/>, Bangalore
Tej Pochiraju, Jaaga Sustain, <http://jaagasustain.in/>, Bangalore
Naiyya Saggi, Babychakra, <https://www.babychakra.com/>, Mumbai

Indonesia

Maesy Angelina, MAMPU, <http://www.mampu.gov.my/ms/>, Jakarta
Diastika Rahwidiati, Pulse Lab Jakarta, <http://www.unglobalpulse.org/jakarta>, Jakarta
Widuri and Dewi, ICT Watch Indonesia, <http://ictwatch.id/>, Jakarta
Aida Sutanto, Investree, <https://www.investree.id/>, Jakarta
Veronika Linardi, Qerja, <http://en-my.qerja.com/>, Jakarta
Dr. Gregorius Bimantoro, Dr. Agnes Susanto, ProSehat, <https://www.prosehat.com/>, Jakarta
Felicity Pascoe, Kompak, <http://kompak.or.id/id>, Jakarta
Citra Savitri, Wobe, <https://wobe.io/>, Singapur (via phone)
Gadis Arivia, Jurnal Perempuan, <http://www.jurnalperempuan.org/>, Jakarta
Peter Riddell-Carre, Reality Check Approach, <http://www.reality-check-approach.com/>, Jakarta
Muhamad Lukman, Pikel Indonesia - Batik Fraktal, <http://pikselindonesia.com/>, Bandung (via phone)
Ria Ernunsari, Sarah Ramadhita, Making All Voices Count Humanist Institute for Co-operation with Developing Countries, <http://www.makingallvoicescount.org/>, Hivos South East Asia, <https://www.hivos.org/country/id/partners>, Jakarta

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Samantha Perry, Women in Tech ZA, <http://womenintech.co.za/blog/about/>, Johannesburg
Jean Armstrong & Alexandra Kayle, HIVSA (Choma Magazin), <http://choma.co.za>, Johannesburg
Pippa Yeats, Praekelt Foundation, <http://www.praekelt.org/projects/>, Johannesburg

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 Soraiya Verjee, Every1Mobile, <http://www.every1mobile.net>, Cape Town
 Angela McCrone, B-Wise, <https://bwisehealth.com>, Johannesburg
 Baratang Myia, Girlhype, <http://girlhype.co.za>, Cape Town
 Chenai Chair, Research ICT Africa, <http://www.researchictafrica.net>, Cape Town

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About us

Publisher

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Aktiengesellschaft
betterplace lab
Schlesische Str. 26
10997 Berlin

Project Management

Franziska Kreische
Carolin Silbernagl

Editor

Lennart Laberenz

Support

Ilka Müller

Translation

Joel Scott

Layout

Rico Reinhold

Proofreading

Francesca Lisette

Infographics

Julia Kontor

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