**Anita Borg Institute Response to UN Human Rights Office of the High Commission Submitted by Jody Mahoney, Senior Vice President, Anita Borg Institute**

1. Please identify the main obstacles and barriers faced by women and girls to access digital technologies and participate in digital life. Please elaborate on the nature **of** these obstacles and how they manifest themselves in practice (e.g. political, economic, social and legal factors, cultural and religious norms, education and literacy gaps, online violence, bullying and harassment, infrastructural constraints, security, affordability, lack of relevant content).

**ABI: Academic.** Students experience a lack of early exposure to computer science (CS) in Middle/High School, or they experience unwelcoming first exposures to CS in college introductory courses. This leads to isolation and self-doubt about women’s capabilities related to CS and difficulty seeing the value of real world CS applications. Women students don’t view themselves as computer scientists, so switch to another major that seems like a better fit. Even if they remain university CS majors, women tend to be isolated in their departments. Women also typically run into stereotypes about girls’ capabilities in CS even if they do have prior experience, hearing common comments such as “You’re pretty good for a girl,” or “Are you sure you belong in this class?” As girls and URM students advance in CS, they are increasingly the only one or one of a few people who look like them in their upper level classes, which increases isolation and lack of community. They don’t necessarily get encouragement to continue either from faculty/staff members.From 1997 to 2009, women’s share of US bachelor’s degrees in computer science dropped from 27% to 18%, while their share of bachelor’s degrees in most other science and engineering (S&E) fields increased. The proportion of female computer science graduate students in the U.S. declined from 27% in 1997 to 25% in 2009. That year, women’s share of master’s degrees in computer science stood at 27%, far lower than their 45% share of all master’s degrees in S&E fields, and down from 34% in 2000 (National Science Board, 2010; NSF, 2012).For women from underrepresented minority groups, the problem is even more serious. Since 1995, the representation of African-American and Hispanic women among computer science degree recipients has remained flat. Hispanic women earn less than 2% of computer science bachelor degrees and African American women earn 4% of degrees. Across gender, the proportion of African-American PhD recipients in the U.S. and Canada in 2009 remained unchanged since 1995 at around 2%, while Hispanic representation dropped from 3% to 1.5%. African American women represent only 1.5% of all graduate students in computer science in the U.S. and Hispanic women represent less than 1%, yet they represent 6.4% and 7.4% of the U.S. population, respectively.

**Workplace-** Researchers have identified five key contributors to the persistent underrepresentation of women and minorities in computing in the workplace and classroom. These include (1) bias and stereotyping; (2) distorted vision of the priority or lifestyle necessary to become a successful computer; (3) scarcity of role models and mentors; (4) workplace isolation; (5) lack of access to influential social networks and network ties created by professional relationships. Technical men are significantly more likely than women to be in high-level positions. The odds of being in a high-level position are 2.7 times as great for men than women. The proportion of women decreases at each level—22% at the entry level, 20% at mid-level, 17% at senior level and 12% at executive level. Women are three times less likely to be in senior roles than men. 56% of technical women leave their jobs at some point, twice the rate as men. 30% of women leave their technology careers due to no advancement, too many work hours, and pay equity or low pay. 27% of women leave their technology careers due to work-life integration—need for more time with family, conflict with family, too much travel. 22% of women leave their technology careers because they did not like their work, and 17% leave because of the organizational climate including culture, management, and colleagues.

1. Does your company/organization consider the impact of its digital products, services, strategies and policies on women and girls?

**ABI**: ABI connects, inspires, and guides women in computing and organizations that view technology innovation as a strategic imperative. Founded in 1997 by computer scientist Anita Borg, our reach extends to more than 87 countries. We believe technology innovation powers the global economy, and that women are crucial to building technology the world needs. We recognize women making positive contributions, and advise organizations on how to improve performance by building more inclusive teams. The impact of ABI’s work is substantial. ABI highlights women technologists and the issues they face. That recognition inspires women to take more action and to continue to inspire others through their work. ABI empowers women to stay and thrive in technical roles. Our communities enable women technologists to meet and support each other locally and virtually. We give organizations the tools to build diverse workplaces, transform their cultures and measure their progress against industry benchmarks. ABI celebrates and helps shape the public portrayal of women technologists. By increasing visibility, we aim to increase representation. Ourprograms provide the guidance and connection that support women technologists throughout their careers.

1. Please indicate if your company/organization collects sex and gender disaggregated data regarding access, use and impact of digital technologies. Is this data openly published and accessible (in accordance with responsible data practices)? If possible, please provide such statistics.

**ABI**: The Anita Borg Institute collects disaggregated data regarding access, use, and impact of digital technologies across many ABI programs. The Anita Borg Institute’s ***Top Companies for Women Technologists*** is a U.S. program that recognizes companies building workplaces where women technologists can thrive. First launched in 2011, the program uses a rigorous methodology to analyze data from participating organizations and produce insights across three key areas: representation, employee experience, and programs and policies. It is important to note the source data from the applying companies is held under non-disclosure, and we do not publish the source data. However we aggregate the total data and publish a report titled **Key Findings & Insights: What the Top Companies Data Reveals**. Based on the 60 participating companies that submitted data in 2016, women held 21.7% of technical roles, a 0.9 percent increase from 2015. Some statistics from the 2016 Top Companies for Women Technologists program include the following:

* Evaluated 60 companies
* More than 1.4 million U.S. employees represented by these companies
* Included 552,000 technologists across 10 industries

Anita Borg Institute India and the India Institute of Management Bangalore (IIM-B) are undertaking an in-depth study in India called ***Climbing the Technical Ladder.*** The research will focus on understanding the factors that help technical professionals (both men and women) succeed in the technology sector. The study will uncover the backgrounds and motivational factors that help to attract, retain and inspire employees in technology organizations in India.

ABI’s largest program, the Grace Hopper Celebration of Women and Technology held in the U.S. and in India, disaggregates all attendee data and publishes that data every year in publicly available impact reports for both celebrations.

1. Please indicate if your company/organization has set measurable targets for gender equality in access and use of digital technologies and describe those targets and their effect.

**ABI**: Yes. ABI tracks measurable targets through our Top Companies for Women Technologists programs. The metrics include the following: Representation of women at entry, mid-career, senior and executive levels; and recruitment, retention and promotion of women. Top Companies standardizes each of these metrics by calculating a Z-score, which measures the company’s deviation away from the mean divided by the standard deviation. By using this widely accepted method, our Z-scores represent where a company stands relative to the average of all participants. A company’s total score, the score used to place them on the Leadership Index, is the sum of the Z-scores for each metric. In 2016, we began collecting company policy and program information to gain a deeper understanding of what makes a great workplace for women technologists. Building off our [insights from 2016](https://anitaborg.org/insights-tools/top-companies-participants/key-findings-insights-2016/), in 2017 we will ask about parental leave, flex time, pay equity, accountability for gender diversity, sponsorship programs, leadership development programs, and training and education on the value of gender diversity. We will analyze this data and provide benchmark information in the company reports.

1. How does your company/organization address the needs of diverse members of the female population in terms of accessing and participating in digital technologies, including women and girls belonging to ethnic or linguistic minorities, those living in extreme poverty or of low caste, those living in rural or marginalized urban areas, women and girls with disabilities, lesbian, transgender and intersex persons, elderly women etc.? What can companies/organizations do to ensure access to alternative communications mechanisms for those unable or unwilling to participate in digital technologies?

**ABI**: ABI is currently engaged in two significant Clinton Global Initiative commitments as a civil society partner. Girls Charge is focused on global girls education, particularly rural, marginalized, poor and minority, and WeTech is focused on women and girls technology access in India and Africa. Girls Charge brings together leading public, private, and civil society organizations from across the globe focused on advancing solutions in girls' education that have the greatest potential for sustainable impact. Through the Girls Charge (Collaborative Harnessing Ambition & Resources for Girls Education) initiative, partner organizations align individual efforts for improving girls' education to five research-informed priorities: (1) Access; (2) Safety; (3) Learning; (4) Transitions; and (5) Leadership. WeTech helps women and girls enter and succeed in technology careers, with the goal of enhancing women’s talent and skills needed to fuel technological and economic growth. In our India office, we have a program that focuses on women entrepreneurs known as Women Entrepreneurs Quest (WEQ) that identifies and rewards talented women entrepreneurs who are founders of technical ventures. This is a comprehensive platform that provides mentoring, learning, and networking opportunities for real business growth, and it is sponsored by the [Anita Borg Institute India](http://www.anitaborg.org/) (ABI India) and the [Department of Science and Technology](http://dst.gov.in/) (DST), Government of India. The [Indo-US Science and Technology Forum](http://www.iusstf.org/) (IUSSTF) also play an integral role in supporting and organizing WEQ. ABI India, DST, and IUSSTF have been in a joint partnership and successfully organizing the WEQ contest since 2014. WEQ is a part of ABI’s Women Entrepreneurs in Motion program. [Sijo Kuruvilla George](https://www.linkedin.com/in/sijokuruvillageorge) is the consultant for WEQ 2016. He is the Founding CEO of [Startup Village](https://en.wikipedia.org/wiki/Startup_Village), a nonprofit technology incubator, and has been instrumental in conceptualizing and effectively leading several public and private initiatives for the entrepreneur community in India.

1. What is your company/organization doing to ensure that its interventions to bridge the gender digital divide, are based upon, and fully consistent with international human rights, including gender equality? Does it conduct impact assessments and/or consult with civil society, affected communities, and human rights experts? (You may wish to consider some key principles required to adopt a human rights-based approach *viz*.: accountability, equality and non-discrimination, participation, transparency, empowerment, sustainability, etc.).[[1]](#footnote-1)

**ABI**: Gender equality is the most significant human rights intervention that ABI performs. We conduct measurable impact assessments every year (Top Companies for Women in Computing). We advocate continuously for harassment-free workplaces, salary equity with men, equality and non-discrimination, and inclusion of technical women in every aspect of the workplace and academic life. We report on flex time policies because flexible schedules make a significant difference in the inclusion of women technologists; leadership development; and training to address the value of gender diversity and/or barriers to achieving it.

1. How does your company/organization encourage the development and use of digital technologies as a resource for the empowerment of women and girls? How does it support the creation of online content, applications and services that reflect women’s needs and/or promote their rights? Does it support women’s rights organizations, women human rights defenders and women environmental activists to use these technologies (for example to access critical information, build knowledge, express thoughts and beliefs, form networks and communities and mobilise for change)? Please provide any relevant examples.

**ABI:** ABI has a specific program known as Open Source Day. For six years, Open Source Day (OSD) has provided women of all skill levels and backgrounds from around the world with the opportunity to collaborate and make a change. College students, professionals experienced coders and beginners join this daylong hackathon to develop projects for improving the world we live in. Participants develop humanitarian projects using open source software. After the hackathon is over, each group presents its project to the other participants and sponsoring organizations. Humanitarian companies or non-profit organizations sponsor OSD projects. ABI India also hosts “hackathons for good.” ABI India hackathons are an intensive collaboration of women computer programmers and software developers in a local area to code and work on projects with social impact, and provide a forum for women to learn and build their coding skills, as well as to work with senior developers, while coding for good.

The event is intended to challenge experienced coders, while providing a learning opportunity to women new to coding. Hackathons are conducted over two rounds. Qualifying rounds are conducted in various India cities, and finals are held in Bangalore during the Grace Hopper Celebration India.

1. Does your company/organization take into account the gender and ICT targets contained in the UN Sustainable Development Goals?[[2]](#footnote-2)

**ABI:** ABI directly impacts six of the goals—Quality Education; Gender Equity; Work and Economic Growth; Industry, Innovation and Infrastructure; Reduced Inequalities; and Peace, Justice and Strong Institutions However, our community of technical women address all the UN Sustainable Development goals, because these women create the technology solutions that solve many of the world’s most significant challenges.

1. Are you aware of any laws, policies or practices to address technology-related or technology-mediated violence against women and girls (e.g. cyber bullying, hate speech, stalking, sexual harassment, trafficking, manipulation of personal information and images)? Has your company/organization taken any specific actions to protect against, and respond to violence experienced by women and girls via technology platforms (e.g. policies, monitoring of content, providing mechanisms for reporting and redress)?

**ABI:** We are aware of many laws and policies that address technology-related or technology-mediated violence and discrimination against women and girls. We regularly report and comment on our website, and we offer both policy solutions and practical advice and strategies to assist women and girls who may be victimized by sexual harassment, workplace or school gender discrimination and bullying.

1. Does your company/organization facilitate access to remedy in accordance with human rights principles and standards, where human rights harms may be caused or contributed to by connectivity initiatives (e.g. where an individual is threatened by internet-based content, or by illegitimate surveillance, limitations on freedoms of expressions, and other rights)?[[3]](#footnote-3)

**ABI:**

We advocate for the transparent reporting of workforce and diversity data in a belief that open reporting of data leads to accountability. We publish the consolidated findings from our Top Companies for Women Technologists each year. We speak out on behalf of the Anita Borg Institute and our broad community of technical women against cyber harassment, workplace discrimination, and sexual harassment. In addition, ABI is committed to creating a respectful, courteous work environment free of unlawful discrimination and harassment of any kind, and we are committed to taking all reasonable steps to prevent it and address it. We will not tolerate harassment relating to any characteristic protected under applicable law by any employee, contractor, vendor, customer, or visitor. In addition to any disciplinary action we may take, up to and including termination of employment, offenders may also be personally liable, in the event related to any characteristic protected under applicable law and that is personally offensive, intimidating, or hostile, or interferes with work performance, regardless of whether it rises to the level of violating the law. In other words, this policy is stricter than the law, in that this policy defines harassment more broadly than does the law.

1. Has your company/organization considered how Big Data, the Internet of Things, Artificial Intelligence and Ambient Intelligence may impact on the gender digital divide from a human rights perspective? Do you see a risk that women and girls may be discriminated against, or excluded by these technologies? Or are they likely to create new opportunities to promote gender equality and empowerment? How can companies/organizations influence design and standards to ensure these technologies are inclusive?

**ABI:** ABI is fortunate that the Chair of our Board of Trustees is Dr. Francine Berman, a noted computer scientist and authority on Big Data and the Internet of Things. Dr. Berman is the Edward P. Hamilton Distinguished Professor in Computer Science at Rensselaer Polytechnic Institute, a Fellow of the Association of Computing Machinery (ACM), a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), and a Fellow of the American Association for the Advancement of Science (AAAS). Dr. Berman is U.S. lead of the [Research Data Alliance (RDA)](http://rd-alliance.org/), a community-driven international organization created to accelerate research data sharing world-wide, through the development and adoption of technical, organizational and social infrastructure needed to support data-driven innovation. Since 2012, she has served as Chair of RDA/US (all U.S. members of RDA) and Co-Chair of RDA's international leadership Council. Dr. Berman regularly addresses the social and ethical issues regarding the IoT and Big Data. These topics are regularly discussed at our flagship program the Grace Hopper Celebration of Women in Computing US (87 countries attending) and India. IoT and Big Data have been full tracks for several years and some of the most technical women in the world currently developing technology speak about the social, ethical and technical impact on women. These include Dr. Mary Lou Jepson, Co-Founder of One Laptop per Child, who is a technical executive, inventing and leading groups in the fields of display, imaging and computer hardware. Her most recent endeavor is OpenWater, a startup aiming to make fMRI-type imaging inside the body practical at the price level of consumer electronics and in wearable form. The 2016 GHC technology tracks included artificial intelligence, computer systems engineering, data science (big data), gaming/graphics/animation, human computer interaction, Internet of things, wearable technology, open source, security/privacy, and software engineering.

1. Is your company/organization taking measures to expand equal access and enhance the participation of women and girls in digital technologies as users, content creators, employees, entrepreneurs, innovators and leaders? Please elaborate on any initiatives, programs or other interventions you may be leading or supporting (including to address underlying causes of the gender digital divide).

**ABI:** This is the substance of all of ABI’s work. We have many initiatives, including the Grace Hopper Celebration of Women in Computing (U.S. and India), which convened more than 18,000 technical women during the two 2016 events to discuss the full participation of women and girls in digital technologies; the Top Companies for Women in Computing program to assist companies in measuring their data; Leadhership1, a technical women’s leadership training program; Systers, the largest online global community of technical women in computing in the world, and its subgroups, including Latina Women in Computing (WIC), African WIC, LGBTQ-A in Computing, Turkish WIC, Arab WIC, Iranian WIC, India WIC, Filipino WIC, Chinese WIC, Vietnamese WIC, Jewish WIC, Asian WIC, and Systers Spain. Systers was developed so women in computing could discuss all issues privately with other women for support and guidance. Other programs include Gender Allies, a program designed to bring male advocates into the conversation.

1. Does your company/organization engage in public advocacy or participate in the Internet Governance Forum to promote gender-responsive policies on digital technologies? Do you support processes and mechanisms that enable the full, active and equal participation of women and girls in decision-making about how the Internet is shaped and governed?

**ABI:** ABI does not directly engage in public advocacy or participate in the Internet Governance Forum, however we strongly support the full, active, and equal participation of women and girls in decision-making about how the Internet is shaped and governed.

1. How can the industry and tech community be productively engaged in bridging the gender digital divide and improving the lived experience of women and girls online? What should be the responsibilities of different stakeholders to make digital inclusion a reality and ensure meaningful digital opportunities for all?

**ABI:**

**Industry and Tech Community:** Transparency is crucial. Understanding the makeup of the technology workforce and transparently reporting it to the public are two critical solutions to the persistent underrepresentation of women in computing. One of the keys to hiring diverse talent is to understand workforce makeup. Offering flexible work schedules, leadership training for technical women, and gender diversity training are three things that can help transform the industry and tech community. Equally important is offering parental leave, having an official company pay equity policy for men and women, having an official company policy that holds managers accountable for gender diversity on their teams, the existence of formal employee resource groups for women, the existence of formal sponsorship programs for women technologists and finally, the existence of formal training programs that address the value of gender diversity and/or the barriers to achieving it.

**Academic:** Universities and colleges need to be proactive if they want to attract and retain women and URM students. The culture of CS departments has skewed so heavily in favor of the majority experience in recent decades that it takes intentional and sustained effort to shift departmental culture. In addition, as CS departments continue to get more crowded, more schools will need to turn to competitive admission processes for CS programs, and those processes tend to be a bit more exclusionary of women and URM students unless they are created carefully.

**Civil Society Organizations and NGOs:**  CSOs and NGOs can lead grass-roots mobilization and advocacy on behalf of women and technology. They can disseminate and share information on best practices and strategies, form networks and action groups that support women in technology, and work with other stakeholders including industry, government and academics to put knowledge and evidence into practice.Women in technology are at the heart of ABI’s mission. We are on a quest to accelerate the pace of global innovation by working to ensure that the creators of technology mirror the people and societies who use it.

1. Other human rights considerations that could/should be taken into consideration include freedoms of expression, association, religion or belief, freedom from violence, right to education, life, health, identity, an adequate standard of living, to participate in government and in cultural life, promotion of gender equality and rights of non-discrimination, rights of indigenous peoples, minority rights, rights of migrant workers, right to enjoy the benefits of scientific advancement, etc. [↑](#footnote-ref-1)
2. For example, Goal 5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women; Goal 9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020. [↑](#footnote-ref-2)
3. See UN Guiding Principles on Business and Human Rights, Principles 29 - 31. [↑](#footnote-ref-3)