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**Embedding Gender in Technology Development to Ensure that
Innovation Meets the Needs of Women and Girls**

Observer paper prepared by:

United Nations Children's Fund (UNICEF)*

* The views expressed in this paper are those of the author and do not necessarily represent those of the United Nations.

Embedding gender in technology development to ensure that innovation meets the needs of women and girls

Abstract

This paper builds on the premise of existing literature showing that embedding a combination of gender targeted and integrated actions in programmes and policies, in many industries, proves to be very efficient for girls and adolescent girls to thrive, given the skills, tools, and opportunities they need exist and are accessible. Nonetheless, the conservation and the availability of data on women in the technology industry is scarce, and often based on the perception that women and girls face different levels of willingness and capacity to participate and benefit from technological innovations. This might lead to misinterpretations and confusions, when out of context data is shared by the media to talk about the digital divide.

This paper explains three recurring confusions: (i) **the confusion of the “lack of interest” rationale** as it may hide social and normative determinants hindering women and girls’ access and willingness to engage with the technology industry - elaborating on the example of girls and gaming, this paper highlights that attention should be attributed to why the actual proportion of gaming girls is not visible, raising the question of girls hiding their identity and gender when engaging with technology; (ii) **the confusion around the connection between gaming and transferability of skills set to the future professional world** - this article clarifies that children digital literacy consists of their play, participation, socializing, searching and learning through digital technologies and that their future job opportunities increasingly depend on how well they understand the digital world; (iii) **the confusion in deeming of all technologies as good or bad**, where nuance is at the essence of identifying, promoting and supporting technological solutions, tools, opportunities and services that do no harm, that are inclusive and that have the potential to answer women and girls needs looking forward.

Behind each of these confusions, this article highlights **hidden determinants of how girls and adolescent girls experience and perceive interacting and benefiting from innovation and technology**, including: safety, accessibility, cost, and social norms. Beyond access to job opportunities, more research is needed around gender and innovation to inform policies and programmes but also to design innovative tools and skills curricula with girls and for girls.

To better understand these issues and address them accordingly, UNICEF’s Office of Innovation, Gender Equality Portfolio, has identified four problem statements that UNICEF programmes strive to solve when concerned with connecting gender and technology for every girl to thrive, and benefit from skills, tools, policies, programmes, opportunities, and access to technological innovation matching today’s issues with tomorrow’s solutions: (1) **Girls, especially adolescent girls, have less access to skills, learning and relevant employment activities than boys**, resulting in female youth aged 15-29 being 3 times more likely than male youth to be outside the labour force and not participating in education; (ii) **Girls’ voices and feedback are not visible in policy decisions and programme design**, even if literature shows that empowering women and girls’ voices and agency results in greater responsiveness to overall citizen/users’ needs; (iii) **Gender restrictive norms and stereotypes perpetuate inequalities affecting girls online and offline**, with gender stereotypes against the involvement of girls and women in STEM education beginning in primary school, almost 70% of non-student female youth aged 15- 29 said they wish to work in the future but restrictive norms, lack of safety and biases prevent them from realizing their dreams; (iv) **Adolescent girls consistently lack access to critical services**, exacerbated by the persistent gender digital divide, leading to greater inequality between genders in accessing digital services such as education, healthcare, and credit from financial institutions.

Therefore, if technology is predicted to represent a growing part of the labour market, if services across the world are being digitalized including vital information and health and income generation, **this article is timely in urging its audience to make sure that a combination of targeted and integrated actions for gender equality is included across innovation and technological design and progresses so that girls can access the tools, skills, opportunity and services that they need and be part of the decision makers** in such innovative industries to fully contribute to the economic and social growth of their communities, countries and regions. This article stresses that gender equality in innovation and technology is not about designing a new tools, platforms or applications serving the needs of girls, it is about **reimagining how we collectively approach and disrupt the processes behind innovations in policies, management, finance, science and technology** to be inclusive of all genders and increase awareness, access and availability of opportunities.

More collaboration between private sector, academia, public sector, and development actors including the United Nations agencies is also needed to collect, analyze, and use productively the following data: (i) **Gender disaggregated data and indicators on girls' access to Science, Technology, Engineering, and Mathematics (STEM)** skills, learning and employment; (ii) **Gender lens criteria for investment in technological solutions, programmes and innovation policies**, including efforts to capture women and girls' voices in the design and testing phases; (iii) **Data on social and normative determinants** capturing the drivers of girls behaviors and expectations towards technology and innovation, including the differentiated impacts of norms and safety measures on young boys and girls in the digital space, existing gendered differences in vulnerability, as well as specific needs of girls and adolescent girls from technological solutions; (iv) **Gender disaggregated data measuring progress by different countries and private companies** in promoting gender equality in access to digital and technological services, including connectivity;

The situation of women tomorrow will be consequence of the available future for girls today, therefore, as an observer's paper, this piece **builds a case for investing in innovation that meets the needs of women and girls** and the related challenges to embed gender in technology development without accurate disaggregates data on the above four points. This paper also gives examples from the UNICEF Office of Innovation on **promising solutions and recommends ways forward to produce, use and share this missing data for every girl and adolescent girl to thrive given the skills, tools, and opportunities they need.**

The last argument demonstrates that the United Nations (UN) has a legitimate, relevant, and timely role to play in fostering systemic approaches as well as accelerating innovative solutions with a gender lens. The role of the UN may reside in the gap between greater impact and greater fundraising capacity by (i) identifying promising solutions; (ii) designing gender lens criteria for investment that capture the high potential of women to reach their targeted impact and by (iii) adding on to their credibility while they face the competition of follow-on funding.

In short, this observer's paper demonstrates that: **(1) data out of context creates confusion regarding gender in technology development; (2) new data and enhanced cross-sectoral collaboration are needed to embed gender in technology development and to ensure that innovation contributes to gender equality; and (3) there is a case for investing in innovation that meets the needs of women and girls and tackling the related challenges to embed gender in technology** for every girl and adolescent girl to thrive given the skills, tools, and opportunities they need.

1. Data out of context creates confusion regarding gender in technology development

There is an increasing effort within literature and research to connect gender equality programmes and policies, as experienced at a young age by girls and adolescents, to their empowerment and access to opportunities in their adult lives. A literature review will show that the connection is no longer to be demonstrated; embedding a combination of gender targeted and integrated actions in programmes and policies, in many industries, proves to be very efficient for girls and adolescent girls to thrive, given the skills, tools, and opportunities they need exist and are accessible. The conservation and the availability of data and information on women in the technology industry is scarce, and often based on the perception that women and girls experience technologies differently than men and boys and face different levels of willingness and capacity to participate and benefit from technological innovations. This might lead to misinterpretations or confusions, when out of context data is shared by the media to talk about the digital divide. Hidden determinants of how girls and adolescent girls experience and perceive interacting and benefiting from innovation and technology include: safety, accessibility, cost, social norms, and many other constraints. Beyond access to job opportunities, more research is needed around gender and innovation to inform policies and programmes but also to design innovative tools and skills curricula with girls and for girls.

This paper aims at sharing UNICEF's Office of Innovation observations on **Gender Transformative technology and innovation** to propose recommendations on **embedding gender in technology development to ensure that innovation meet the needs of women and girls**. The UNICEF's Office of Innovation Gender Equality Portfolio has identified four problem statements connecting gender and technology for every girl to thrive, and benefit from skills, tools, policies, programmes, opportunities and access to innovation and technology in order to match today's issues with tomorrow's solutions:

- (i) **Girls, especially adolescent girls, have less access to skills, learning and relevant employment activities than boys**, resulting in female youth aged 15-29 being 3 times more likely than male youth to be outside the labour force and not participating in education;
- (ii) **Girls' voices and feedback are not visible in policy decisions and programme design**, even if literature shows that empowering women and girls' voices and agency results in greater responsiveness to overall citizen/ service users' needs, e.g.: when women are elected to office, policymaking increasingly reflects the priorities of families, women, and excluded groups, and e.g.: inventions arising out of mixed teams are more economically valuable and have higher impact than those in which only men are involved²;
- (iii) **Gender restrictive norms and stereotypes perpetuate inequalities affecting girls online and offline**, e.g.: gender stereotypes against the involvement of girls and women in STEM education begin in primary school³, and e.g.: almost 70% of non-student female youth aged 15- 29 said they wish to work in the future⁴ but restrictive norms, lack of safety and biases prevent them from realizing their dreams;
- (iv) **Adolescent girls consistently lack access to critical services**, exacerbated by the persistent gender digital divide, leading to greater inequality between genders in accessing digital tools and online services like education, healthcare, insurance, and financial credit, noting that on the contrary

² OECD, 2018 <https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf>

³ International Labour Organization and United Nations Children's Fund, GirlForce: Skills, Education and Training for Girls Now, ILO and UNICEF, Geneva and New York, 2018

⁴ibid

increased access to information makes women feel safer, more autonomous, and self-confident⁵ and equipped to engage with existing services.

By stating “**embedding gender in technology development**” this paper means to highlight how gender related guidelines, toolkits, indicators, and disaggregated data can protect, support and promote skills, tools, services and practices that foster optimal growth and development for all children and adolescents to ensure that innovation meets the needs of people of all genders, including women and girls, with the support and engagement of boys and men in the process. **The assumption behind this definition is that the combination of gender tarded and integrated actions in technology development is deliberate and evidence-based** so that decision making in both private and public sectors is addressing the root causes of women and girls’ relationship to technology, tapping into resources, tools, and opportunities to increase this engagement.

The availability of data and information on women and girls interacting, benefiting, or left aside from the technology industry as players, coders, designers, engineers, influencers or else is scarce, and often based on the perception that women and girl experience technologies differently than men and boys and display different levels of willingness and capacity to participate and benefit from technological innovations. According to the OECD 2018 report on Bridging the digital gender divide, among the reasons why fewer women than men use digital tools is the lack of awareness of how technology might benefit them, “Women are significantly more likely than men to not use the Internet because they think they “do not need it” or they ‘do not want it’”⁶. The report also stated that “25% of the women who do not engage online are generally not interested in using the Internet, and almost all of them believe that accessing the Internet would not bring them any benefit (Intel and Dalberg 2012)”⁷.

A first element of confusion arises in the “lack of interest” rationale, so much so there is a need to investigate this so called “lack of interest” as it may hide social and normative determinants hindering women and girls’ access and willingness to engage with the technology industry “evidently, lack of trust in digital devices or the Internet may also play a role, despite women mainly reporting lack of interest or having low expectations about its usefulness and relevance to their local context”⁸. To overcome this confusion, UNICEF is investigating digital literacy and learning with a gender lens to understand what hinders girls’ ability to access and use technological tools and services and is identifying solutions easier to access and use beyond context-related constraints such as photograph sharing and voice navigation to overcome language barrier.

Along the same lines, misinterpretations can occur when figures stating that half of the world gamers are female are widely spread by media out of context to talk about the digital divide. If indeed girls are already representing half of the “gamers” or users gaming industry products for instance, then it seems that the gender divide has been bridged. **Nonetheless, attention should be attributed to why this proportion of gaming girls, and adolescent girls in particular, is not visible.** As private companies investigate the breakdown of their consumer targets for marketing purposes and product development strategies, interesting research questions can be raised about girls hiding their identity and gender when engaging with technology. Hidden determinants of how girls and adolescent girls experience interacting and benefiting from innovation and technology might therefore include: safety, accessibility, cost, social norms and many other constraints that ought to be investigated and quantified to allow for a gender-responsive transformation of the innovation space.

⁵ OECD, 2018 <https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf>, nested quote of Aker et al., 2016

⁶ OECD, 2018 [bridging-the-digital-gender-divide.pdf \(oecd.org\)](https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf) nested quote of Fallow, 2005

⁷ OECD, 2018 [bridging-the-digital-gender-divide.pdf \(oecd.org\)](https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf) nested quote of Intel and Dalberg, 2012

⁸ OECD, 2018 [bridging-the-digital-gender-divide.pdf \(oecd.org\)](https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf)

This paper also asks the question of what is needed **“to ensure that innovation meets the needs of women and girls”**. As innovation is looking into the future, the assumption behind ensuring that innovation meets the need of women and girl is based on the idea that today’s problem must be met by tomorrow’s solutions. Indeed, girls today need digital literacy beyond technical know-how as it **“refers to the knowledge, skills and attitudes that allow children to be both safe and empowered in an increasingly digital world”**⁹.

A second confusion arises when technology is associated with gaming and the transferability of the gaming skills set to the future professional world ceases to be obvious. Therefore, the assumption of this observation article is also to clarify that children digital literacy consists of **“their play, participation, socializing, searching and learning through digital technologies** [and that] what constitutes digital literacy will vary according to children’s age, local culture and context”¹⁰ but recognizing that **“children’s schooling, social welfare and future job opportunities may depend on how well they understand the digital world around them”**¹¹.

In the OECD Social Institutions and Gender Index 2019 Global Report gender-based discrimination is described as a major factor of hindered girls potential to thrive by reducing women’s average years of schooling and human capital by 16% respectively, amounting to an overall reduction in the global income (both men and women) by 7.5%, equivalent to USD 6 trillion¹². In terms of industry and job market, nearly half of all countries in the Gender Index prohibit women from entering certain professions. As a result, women generated 37% of global GDP in 2018, despite accounting for 41% of the global labor force¹³. **The situation of women tomorrow will be consequence of the available future for girls today.**

Nonetheless, globally, about 1 billion girls and women lack the skills they need to succeed in rapidly changing job markets¹⁴ while 1 in 4 girls aged 15–19 years is neither employed nor in education or training compared to 1 in 10 boys of the same age¹⁵. **Therefore, if technology is predicted to represent a growing part of the labour market, if services across the world are being digitalized including vital information and health and income generation, now is the time to make sure that gender equality is targeted and integrated across innovation and technological design and progresses so that girls can access the tools, skills, opportunity and services that they need and be part of the decision makers** in such innovative industries to fully contribute to the economic and social growth of their communities, countries and regions.

This paper has established **the importance of defining and understanding women and girls’ engagement with the technology an innovation space including tools, skills, opportunities, and services and has underlined how confusing the lack of data or the information available out of context can be for decision makers and industry leaders to make informed decision that respond to the needs of women and girls.**

⁹ UNICEF 2019, Digital Literacy for Children: Exploring definitions and frameworks (Scoping Paper No. 01) [UNICEF-Global-Insight-digital-literacy-scoping-paper-2020.pdf](#)

¹⁰ Ibid

¹¹ Ibid

¹² SIGI 2019 Global Report: Transforming Challenges into Opportunities https://read.oecd-ilibrary.org/development/sigi-2019-global-report_bc56d212-en#page20%22

¹³ Ibid

¹⁴ UNICEF [Skills4Girls Partner Toolkit.pdf \(unicef.org\)](#) nested quote Malala Fund. 2019. Full Force: Why the world Works Better When Girls Go To School. Malala Fund, London.

¹⁵ UNICEF [Skills4Girls Partner Toolkit.pdf \(unicef.org\)](#) nested quote UNICEF estimations based on ILOSTAT Data, 2019

The last confusion that this paper will highlight is the grouping of all technologies as good or bad, where nuance is at the essence of identifying, promoting, and supporting technological solutions, tools, opportunities, and services that do no harm, that are inclusive and that have the potential to answer the needs of people of all genders looking forward. The rate of failure of technology and innovation is a product of multiple factors including the perception by women and girls of the user experience. In an increasingly dematerialized world, the risks are new and can be high, thus they must be monitored closely as they might exacerbate existing inequalities. UN Women warns that not only are women under-represented across core innovation sectors, including science, technology, engineering, and mathematics, but new technology brings risks of bias and possibilities for misuse¹⁶.

Moreover, this paper is anchored in the vision of **CSW67: Innovation and technological change, and education in the digital age for achieving gender equality and the empowerment of all women and girls** with a specific lens on **Gender Transformative technology and innovation** by highlighting that innovative approaches are needed to improve the way the technology industry responds, adapts but also benefits from having a gender equality approach. The academic literature is rich on the lack of disaggregated data on gender in general, but **this piece is recommending a structured approach to collecting, analyzing, and sharing data and information to bridge this gender and technology data gaps around robust problem statement (designed with girls and for girls)** to ensure the inclusiveness of women and girls in the technology and innovation space today and tomorrow. On this point, UN Women highlights that “innovations in policies, management, finance, science and technology that disrupt “business as usual” are increasingly recognized as a way to accelerate the achievement of the SDGs for all; from mobile banking ventures that facilitate women’s entrepreneurship to e-learning platforms that take classrooms to individuals, social innovations have the potential to serve as powerful tools to break trends and increase awareness, access and the availability of opportunities”¹⁷. This article goes beyond the disruption of business as usual by redefining what is meant by innovation with a gender lens. Gender equality in innovation and technology is not about designing new tools, platforms or applications serving the needs of girls, it is about reimagining how communities, governments and companies collectively approach and disrupt the processes behind innovations in policies, management, finance, science, and technology to be inclusive of all genders and increase awareness, access, and availability of opportunities. **The gender lens, as defined in this article, to be applied to innovation, investigates the existing and desired systems as well as the functioning and broken processes, in order to question the inputs and biases and to prompt technology actors to reframe how they measure success and how they evaluate impact.**

2. New data and enhanced cross-sectoral collaboration are needed to embed gender in technology development and to ensure that innovation contributes to gender equality

UNICEF Office of Innovation is looking at the gaming industry as an entry point to overcome the existing confusion around gender and technology and better understand the current and future needs of women and girls in their relationship to the innovation and technology space, including with solutions, games and policies mindful of girl’s needs. A 2018 reflection from University of Southern California (USC) highlights that 73% of women in the gaming industry work outside the main jobs of developing games, which means that they have little voice in the content, interactions styles, character representation, and reward systems involved in games¹⁸.

¹⁶ Ibid

¹⁷ UN Women [Innovation-for-gender-equality-en.pdf \(unwomen.org\)](#)

¹⁸ USC Gender Equality Sells: Women in the Games Industry | USC Games Program (nested quote Prescott, Julie, and Jan Bogg. “Segregation in a Male-Dominated Industry: Women Working in the Computer Games Industry.” International Journal of Gender, Science, and Technology 3.1 (2011): 205-27. Open University. International Journal of Gender, Science, and Technology, 2011. Web. 22 Apr. 2016. <http://genderandset.open.ac.uk/index.php/genderandset/article/view/122/259>

This paper aims at stressing that **data is needed to explain how the lack of women and girls involved in design and product development is affecting the appeal of technological products to girls as well as the consequences of certain design and technical choices on the overall user experience of women and girls, and their intent to play at all or disclose their gender when they play.**

A lot has been said about gender-based violent content, sexualization and passive characters associated with girls, but very little has been documented and quantified to inform decision making both at the game development stage and at the policy level to build a case for coordinated action from the industry. At the academic level, data is needed to document the benefits of using technology early on in life and its connection to adolescent choices of studies and careers; what skills are transferable to the professional world; how does early age connectivity affect women and girls' integration into the work force; and how virtual gaming can erase existing inequalities in the physical world instead of exacerbating them through harassment and violence.

To address the four problem-statements identified by UNICEF Office of Innovation with girls and for girls, more collaboration between private sector, academia, public sector, and development actors including the United Nations agencies is therefore also needed to collect, analyze, and use productively the following data:

- (i) **Gender disaggregated data and indicators on girls' access to Science, Technology, Engineering, and Mathematics (STEM) skills, learning and employment;**
- (ii) **Gender lens criteria for investment in technological solutions,** programmes and innovation policies, including efforts to capture women and girls' voices in the design and testing phases;
- (iii) **Data on social and normative determinants capturing the drivers of girl's behaviors and expectations towards technology and innovation,** including the differentiated impacts of norms and safety measures on young boys and girls in the digital space, existing gendered differences in vulnerability, as well as specific needs of girls and adolescent girls from technological solutions;
- (iv) **Gender disaggregated data measuring progress** by different countries and private companies in promoting gender equality in access to digital and technological services, including connectivity;

Eventually in this paper, to illustrate evidence-based best practices, UNICEF Office of Innovation is sharing its observations and experience on promoting, supporting, and scaling transformative solutions that illustrate the importance of embedding **gender in technology development in order to ensure that innovation meets the needs of women and girls.**

3. Way forward and recommendations from UNICEF Office of Innovation

At UNICEF, Gender equality's definition is summarized by the statement that girls and boys enjoy the same rights, resources, opportunities, and protections, confirming that "gender equality is essential to realizing the mandate of UNICEF to uphold the rights of all children"¹⁹. With this responsibility in mind, in 2021, UNICEF ushered in a new gender policy (2021–2030) articulating its vision for gender equality in its programmes, workplaces and practices, around the world. The subsequent UNICEF Gender Action Plan (GAP), covering the period from 2022 to 2025, charts UNICEF's way forward with a series of time-bound results that deliver lasting, transformative change for children, adolescents, and women worldwide.

¹⁹ UNICEF Gender Action Plan (GAP), 2022-2025, [2021-31-Gender Action Plan 2022-2025-EN-ODS.pdf \(unicef.org\)](https://www.unicef.org/gap/2021-31-Gender-Action-Plan-2022-2025-EN-ODS.pdf)

In complement to the main argument of this paper to address the four problem-statements listed above with more collaboration between gender and technology stakeholders to collect, analyze, and use productively the missing data, this part describes the way forward and proposes additional recommendations and best practices from UNICEF worldwide.

This first recommendation of this paper is anchored in the UNICEF GAP's approach recognizing: (i) that gender discrimination has lifelong and intergenerational impacts, therefore, there is a need to **advance gender equality throughout the life course**; and (ii) that girls are both disproportionately affected by gender inequality and have tremendous potential to be leaders for change, therefore, it is crucial to **promote targeted actions to advance the leadership and well-being of adolescent girls**. This dual-track approach goes beyond responding to the manifestations of gender inequality to tackle its underlying drivers, including by engaging boys and men as allies; advancing upstream financing and policy solutions; and supporting girls' agency and voice²⁰.

The second recommendation is to, deliberately and proactively, listen to and respond to the feedback of girls and women while putting in place programmes and policies and while designing, developing, and testing tools and processes.

UNICEF's partnerships and mechanisms like U-Report, a free, SMS-based tool for community participation are a cornerstone of programme prioritization and advocacy. U-Report was developed by UNICEF to address issues that affect young people and their wider community, e.g.: in Afghanistan, U-report deliberately reached out to women and girls about their current realities and what UNICEF should be prioritizing in its future work, "A landmark moment has been reached for children and youth in Afghanistan as the U-Report platform in the country hit one million users becoming only the fifth nation in the world to reach this milestone [...] in the last months of 2021, the results of a U-Report poll led UNICEF, donors and UN agencies to scale up the use of cash transfers in Afghanistan to help those most in need"²¹.

UNICEF has been working on multiple solutions to address the specific gender, technology, innovation and data related issues raised in this paper, including by developing a ready to use **Gender Tech Toolkit**, by UNICEF East Asia and Pacific, based on the observation that "online experiences and opportunities are also important for children's and young people's development across a wide range of areas, including : online education, access to formal and informal learning; access to information and support relating to health and well-being; being able to engage with their own creative and cultural practices; to express their ideas and opinions; for leisure, play, and connecting with peers; to find employment, career information, entrepreneurship opportunities."²² This toolkit is an example of low-tech solution to a technological issue as it shows, through a pedagogical content, how data can be used to inform design and development decision by technology actors as it showcases **best practices, to support innovators, designers and implementers of digital products and services, to benefit girls and young women equally and help close the gender digital divide considering connectivity, data limitations, digital literacy levels, as well as appealing and safe content**.

Another example of UNICEF's work in listening and responding to girls' feedback in gender and innovation is **based on the behavioral insight that girls have important questions about their health and tend to search online for answers confronting themselves with taboo and misinformation**. The innovative application "Okky" addresses the need for a trustworthy digital solution that helps inform and empower

²⁰ UNICEF Gender Action Plan (GAP), 2022-2025, [2021-31-Gender Action Plan 2022-2025-EN-ODS.pdf \(unicef.org\)](#)

²¹ UNICEF U-report Afghanistan , [U-Report Afghanistan reaches one million milestone \(unicef.org\)](#)

²² UNICEF [Innovation and Technology for Gender Equality | UNICEF East Asia and Pacific](#)

its users: “Oky provides girls with information about their periods in fun, creative and positive ways, delivered straight into their hands through the tools they use every day — mobile phones. Available as an Android app, Oky’s features include individualized cycle trackers and calendars, tips, and menstruation information. **Over extensive user-centered design and remote and in-person user testing, Oky has developed some more unconventional features that are girl-centered and engaging** — through Oky’s gamified design, girls can personalize the app, select, and unlock their own avatars and play menstrual health quizzes. Unlike other period trackers tailored to Western adult women and providing information that can be gender-stereotyping or focused on fertility, Oky aims at being: age and culturally appropriate, localized, in local languages; digitally inclusive for low connectivity/mobile literacy; accessible online and offline; open source, with high data privacy and security; responsible with cycle-prediction, and period and body-positive language; fun, girl-centered and gamified, to drive user engagement and encourage learning.”²³

The third recommendation on combining gender targeted and integrated actions across the innovation and technology industry requires a systemic multi-stakeholder approach and sustainable investment to tackle some of the issues highlighted in this paper, including: (i) the reduction of the confusion around the available gender related data; and (ii) the increase of intentional and positive change in technology and innovation design and development to include the needs of women and girls. **The UNICEF Office of Innovation is therefore reflecting on this systemic approach by exploring gender lens investing. It has already introduced a target to support women in innovation and female led solution with its Venture fund by revisiting its processes and messaging.** Indeed, the Venture team of the UNICEF Office of Innovation has identified that 2-9% of venture capital (VC) funding goes to female-led companies globally and that the proportion of funding also declined from 2.8% in 2019 to 2.3% in 2020²⁴, so it took action to remedy this trend and increase female led solutions among the UNICEF Venture cohorts to reach 43% female funded companies in 2022²⁵.

The last argument of this paper will therefore be to demonstrate that the United Nations has a legitimate, relevant, and timely role to play in fostering systemic approaches as well as accelerating innovative solutions with a gender lens to increase the market’s trust in women led solutions and empower women and girls to engage with technologies on their own terms. At UNICEF Office of Innovation, investing in and supporting the growth of female-led companies is now based on smart investing to identify and support underrepresented innovators and problem solvers with potentially scalable solution. Hence, more than 40% of the UNICEF Innovation Fund portfolio consists of female-led/founded startups with over 62% of the fund’s most recent investments in open-source, blockchain-based solutions being female-led²⁶. The 2021 cohort of the Venture Fund was building platforms toward greater financial inclusion to enable efficient payments to frontline workers, facilitate cross-border transfers, and improve access to saving and lending services²⁷. UNICEF’s early observations suggest that female led companies are more efficient are reaching their targeted impact on beneficiaries, while they face higher challenges in mobilizing follow up funding.

The role of the United Nations may reside in this gap between greater impact and greater fundraising capacity by: (i) identifying promising solutions; (ii) designing gender lens criteria for investment that capture the high potential of women to reach their targeted impact; and by (iii) adding on to their credibility while they face the competition of follow-on funding.

²³ UNICEF Office of Innovation [Okky: Co-created with girls, for girls | UNICEF Office of Innovation](#)

²⁴ World Economic Forum, Sana Bedi, UNICEF Office of Innovation, 2021 [Why venture capital should commit to gender balance | World Economic Forum \(weforum.org\)](#)

²⁵ UNICEF Office of Innovation, Investor Update, 2021-2022

²⁶ World Economic Forum, Sana Bedi, UNICEF Office of Innovation, 2021 [Why venture capital should commit to gender balance | World Economic Forum \(weforum.org\)](#)

²⁷ Ibid

The UNICEF Venture Fund's portfolio of startup and country office investments have raised approximately USD \$27.7M in follow-on funding in 2021-2022 and was able to identify a gender gap for women led companies, which reinforces the case for more data needed to measure this gender gap in the whole Venture Capitalist space and the subsequent cost of opportunity for impact driven women-led solutions.

To conclude, this observer's paper demonstrated that: **(1) data out of context creates confusion regarding gender in technology development; (2) new data and enhanced cross-sectoral collaboration are needed to embed gender in technology development and to ensure that innovation contributes to gender equality; and (3) there is a case for investing in innovation that meets the needs of women and girls and tackling the related challenges to embed gender in technology** for every girl and adolescent girl to thrive given the skills, tools, and opportunities they need. As previously stated, the wellbeing, integration and opportunities of women tomorrow will be consequence of the available future for girls today, therefore, as an observer's paper, this piece encourages investing in innovation that meets the needs of women and girls, engaging in co-creation, design and development of technological products and services with women and girls, and acting at the system's level to collect gender disaggregated data and advocate for systemic change.

End.