TechWomen is sponsored by the U.S. Department of State with funding provided by the U.S. Government and administered by IIE.
Goals

Program Goals

- Enhance professional capacity of 100 Emerging Leaders (ELs)—women from the Middle East and North Africa (NEA), Sub-Saharan Africa (AF), and South and Central Asia (SCA)—to support economic growth and stability in their home countries through science and technology.

- Expand active and diverse professional networks that serve as platforms for communication, resource sharing and strategic alliances for ELs and their mentors across civic, public and private sectors.

- Strengthen ties and increase mutual understanding among ELs, mentors and their institutions in the U.S. and the NEA, AF, SCA.

The program also aims to inspire women and girls in their communities, and expand these girls’ interest in STEM careers by exposing them to female role models.

The overarching goals of the delegation trips fold into and build on the program goals:

- Encourage young women and girls to pursue STEM careers.

- Expand professional networks of women in STEM.

- Support TechWomen fellows in making an impact.

- Reinforce lasting connections within the TechWomen network.

Evaluation Goals

- To assess the expected outcomes and impacts of the TechWomen program on the ELs and their mentors.

- To assess the expected outcomes and impacts of the TechWomen Program on the ELs’ and mentors’ institutions and communities.

- To assess program outreach and implementation and identify lessons learned to guide future programming related to the TechWomen Program. Please note that the findings pertaining to this goal are proprietary and not included in the external report.

TechWomen is an initiative of the U.S. Department of State’s Bureau of Educational and Cultural Affairs (ECA). TechWomen, launched in 2011, supports the United States’ global commitment toward advancing the rights and participation of women and girls around the world by enabling them to reach their full potential in the tech industry. TechWomen is managed by the Institute of International Education (IIE).

Read more at TechWomen.org.
Methodology

**Emergent Leader Surveys**

ELs received 4 surveys: 2 baseline and 2 final surveys, administered in September and November 2017, respectively. The surveys were administered jointly with the ECA’ Evaluation Division and merged into one dataset. The baseline surveys had a response rate of 96% and the final surveys had a 99% response rate. This report analyzes responses of all 99 ELs.

**Mentor Surveys**

Mentors received a survey in November 2017, following the completion of the TechWomen program. This report analyzes responses of 192 mentors; 66% response rate. The three types of mentors – Professional Mentors, Impact Coaches, and Cultural Mentors – were represented in the survey proportionately to the mentor population.

**Delegate Surveys**

Participants of the delegation trips, fellows and mentors, received a survey at the end of their trips in March 2017. For this report we analyzed data from 58 respondents; 77% response rate.
Evaluation Goal 1

Program Goal 1.

Enhance professional capacity of 100 Emerging Leaders —women from the Middle East, Africa and South and Central Asia—to support economic growth and stability in their home countries through science and technology.
Change in Skills and Professional Capacity

ELs greatly improved their leadership skills, in particular their communication and strategic thinking skills.

98% of Emerging Leaders feel that they obtained skills and experience that they can apply in their work back home.

97% of ELs increased their cultural sensitivity and ability to function in a multi-cultural professional environment. They also gained self-confidence and improved their presentation and pitching skills.

ELs used their teamwork skills when developing their action plans and their Impact Coaches guided them through the process. As a result, 69% of ELs increased their teamwork skills “very much” and 21% increased these skills “somewhat.”

87% of ELs noted improvements in their field-specific technical skills, primarily through professional mentorships at Silicon Valley companies.

“…TechWomen helped me a lot to change my opinion about team working skills.” EL, SCA

95% of ELs increased their self-confidence as public speakers, and professional women in the STEM field.

“I gained skills that will allow me as a woman in a difficult society to show my leadership attitude with confidence based on solid knowledge and professional network.” EL, NEA

“My communication skills changed drastically, even though I’m an outspoken person. I became more patient when speaking and receiving information, as well as communicating better for people to understand.” EL, NEA

“I was mentored at a biomedical research company and I learned the technical skills of Next Generation Sequencing. I had only heard of the technique from theory and had no practical skills.” EL, AF

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Evaluation Goal 1

Program Goal 2

Expand *active and diverse professional networks* that serve as platforms for communication, resource sharing, and strategic alliances for Emerging Leaders and their mentors across civic, public and private sectors.
Internal and External Networks

All ELs have increased their networks with other ELs, their mentors and with other U.S. STEM professionals.

98% of ELs gained skills and experience to continue building their networks with U.S. STEM professionals after the program.

What are internal networks?

One of the goals of the TechWomen program is to develop strong national, regional and inter-regional professional networks between the Emerging Leaders. A strong network gives opportunity for knowledge-sharing and development of innovative, collaborative solutions, and is also an important support mechanism for women working in non-traditional female fields, such as STEM.

What are external networks?

Another goal of the TechWomen program is for the Emerging Leaders to develop connections with other STEM professionals in the U.S. These connections support future collaborations between the U.S. and participant countries.

What are high-level connections?

High-level connections result from networking and signify deep professional engagement between two people. Connections that are personal or professional acquaintances signify the process of networking with a potential to lead to high-level connections, but do not necessarily lead to these connections.

This chapter depicts connections through sociograms—graphic representations of social networks between ELs —before and after the TechWomen program.

How to read graphic depictions of social networks using sociograms?

The circles represent each individual participant. The color of the circle points to the region of the participant, and a larger circle indicates a higher number of connections relative to each graph.

Each line is a connection between two ELs. The more pronounced lines indicate deeper professional connections (e.g. high-level connections). All connections are reciprocal.

Connections were measured using a scale:

High-level: 1) Professional collaboration or 2) Exchange of professional information and advice.
Medium-level: 3) Some professional conversations but not in-depth.
Low-level: 4) Know each other on personal level, but have not interacted professionally or 5) Merely acquainted.
**ELs’ Internal Networks**  
**All Connections**

Emerging Leaders from all regions were equally proactive in building their networks, increasing the quantity and quality of their connections.

**Quantity.** Before the program, an EL knew 11 other ELs on average, whereas after the program she knew 94 ELs.

**Quality.** Before the program, less than half of all connections were beyond basic acquaintance, and after the program, 80% of connections were beyond acquaintance level.

As ELs developed their internal networks, **they learned critical communication skills and increased their self-confidence and motivation.**

ELs who expanded their networks to a greater extent **felt more confident that they could have a successful professional and family life and make a difference in their families and countries.** This finding confirms the positive impact of women-only networks for women’s sense of identity and confidence as STEM professionals.

Before: **552 total connections**  
ELs had an opportunity to introduce themselves to other selected participants just before the start of the program, which may explain the high numbers of low-level connections.

After: **4648 total connections**

"The program equipped me with [belief] in myself, [belief] in my personal and professional skills. It reminded me every day that I can achieve everything I dream about, even though I am a woman and I have to grow children and be responsible for my housework." EL, SCA
ELs’ Internal Networks

High-Level Connections

The number of high-level connections increased from 154 to 1975. Before the program, only 28% of the ELs were engaged in high-level conversations. After the program, 43% of all connections between the ELs were either exchange of professional information or professional collaborations on various projects. Some ELs have already launched national and regional collaborations.

Before: 154 connections that involved professional information exchange or collaborations

After: 1975 connections that involved professional information exchange or collaborations

“I’m collaborating with an EL from Sierra Leone on [a] water project and I’m collaborating with the South Africans on [a] water project and other research and funding opportunities. I’m also collaborating with ELs from [Kazakhstan] and [Pakistan] on material science research.” EL, AF

Getting to deeply know their fellow participants had an influence on how the ELs perceived the place of women in STEM. ELs who have established more high-level connections with others also indicated significantly higher change in their opinions that women are as capable of understanding STEM as men and are well-fit for STEM careers.

“The program gathered women leaders and it was interesting for me to know about every one of them and their impacts in the societies they live. As I became familiar with their endeavors I started thinking of [women’s] role in the society and believe that women are capable to change the world.” EL, SCA
**ELs’ External Networks**

Networks that ELs built with TechWomen mentors were not counted under external networks.

Before TechWomen only 16 ELs had ever pursued professional networking with U.S. STEM professionals. The commonly cited barriers to networking with STEM professionals in the U.S. were limited exposure (44%) and limited knowledge how to strike up a conversation (36%).

The TechWomen program helped ELs to overcome these barriers by expanding ELs’ networks while in the U.S. and strengthening their skills and abilities to continue networking after the program. In addition to networking with 287 TechWomen mentors, 67% of ELs made new professional connections with other U.S. professionals in STEM and 19% deepened the relationships they had prior to TechWomen. ELs have already started leveraging their professional networks with STEM professionals in the U.S. by setting up collaborations and sharing resources.

“**I was connected to other experts by my professional mentors in order to help me achieve my goals. For instance [this person] helped me to understand how site investigations and geotechnical studies are done even though he was not my professional mentor.**” EL, AF

“**My mentor introduced me to [person A], then I visited UC Berkeley and I met [person A] who is an entrepreneur and lecturer. We exchanged info and he introduced [me to another person] who is doing an entrepreneurship boot camp in [my country], so we collaborated to gather and he invited me to be a mentor during the boot camp.**” EL, NEA

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**Before: 42 external connections with U.S. STEM professionals**

**After: 622 external connections with U.S. STEM professionals**
Mentors’ Networks

Mentors have increased their own domestic networks by meeting other mentors and U.S. State Department officials in DC. They also built strong networks with the Emerging Leaders. The majority of mentors plan to maintain their TechWomen networks.

Networks with Emerging Leaders

90% of mentors intend to maintain their relationship with ELs, and 79% of mentors plan to stay in touch with fellows from previous cohorts.

“For one of our ELs we want to work with her and those at her institution to bring our sequencing technologies to Egypt for their application of interest.” Professional Mentor

“My Mentee and I plan to stay in touch regarding new and challenging projects we encounter to continue sharing our learning experiences since we are both early in our careers. We may even collaborate on a research paper in the future.” Professional Mentor

“We have a group chat with team Rwanda. I plan to visit them in the spring, when we hope to coordinate a visit in Rwanda with a Director at NSF we met in DC. I stay in touch with my EL from last year too. I frequently reach out to other mentors as well.” Impact Coach

Networks with Mentors

Mentors have also expanded their local network: 86% of mentors intend to stay in touch and collaborate with other mentors.

“I connected with a few mentors passionate about pushing forth support for TechWomen in Congress and so we are working with our local representatives’/senators’ offices to help them advocate for our program and partner with our initiatives.” Impact Coach

“I am trying to work with some other mentors to put together a network for ed tech and educator resources in the Bay Area who could be potential speakers and impact coaches for education-based impact projects.” Cultural Mentor

“People I’ve met through mentoring are some of my closest friends. We now exercise together, attend speaker events together, etc.” Professional Mentor

“We do a monthly lunch with [my company] mentors and also meet at tech and social events.” Professional Mentor
Evaluation Goal 2

Program Goal 3

*Strengthen ties and increase mutual understanding* among Emerging Leaders, mentors and their institutions in the U.S. and the Middle East and North Africa, Sub-Saharan Africa and South and Central Asia.
Mutual Understanding & Strengthened Ties

Cultural Understanding

Participation in TechWomen significantly impacted ELs’ knowledge, understanding, and opinion of the United States and American people. This impact was felt equally by those fellows who were in the U.S. for the first time (73%) and those who had visited previously.

90% of ELs developed a more favorable view of the American people as a result of TechWomen. 68% of ELs improved their perception of the U.S. government.

“I was integrated into the culture of America, and changed some stereotypes, which I had before. Great country, great people!” EL, SCA

“I gained more insights about cultural diversity, about the Silicon Valley and U.S. culture. TechWomen was a life-changing experience.” EL, NEA

Over 95% of ELs have shared information about their home country’s culture, society, and values with Americans they met during the program. 98% of mentors learned about the ELs’ countries and culture.

85% of ELs shared professional best practices from their home country with foreign counterparts. 95% of mentors gained better insight into the work culture of other countries. 62% of mentors felt that through the program they were exposed to new business and management practices.

Professional Best Practices

96% of ELs increased their knowledge and understanding of best practices in their field of work in the U.S. as a result of the program.

“The interaction with American people and the ELs helped me to be more culturally aware, improved my communication skills, and I have learned the management skills and methodologies like Agile, and gave me the idea to start the first toastmaster club in my country.” EL, NEA

Future U.S. – EL Collaborations

59% of ELs feel that they have established connections between their organizations and technology companies in the U.S.:

• 82% of ELs plan to collaborate with U.S. professional contacts they gained and 17% did so by the end of the program.

• 80% of ELs plan to collaborate with their Professional Mentors on projects beyond their mentorship project.

• 73% of ELs plan to collaborate with their Impact Coaches on action plan and other projects.
Evaluation Goal 2

Inspire women and girls in their communities, and expand girls’ interest in STEM careers by exposing them to female role models.
Impact on Women and Girls

The program impacted the ELs’ and mentors’ commitments to impact their communities and inspire women and girls to pursue and continue in STEM careers. The delegation trips further impacted the communities, inspiring, opening minds, and breaking stereotypes.

Over a year after the program, 93% of ELs felt they were role models for young women in their communities. Many received national and international awards and recognition.

92% of ELs felt they have increased the likelihood that other women in their community pursue STEM careers. To achieve that, ELs organized STEM workshops and initiatives, developed STEM curricula, founded organizations to support women and girls in STEM, and spoke at events and podcasts.

For example, Nigerian fellows Chioma Ezedi, 2016, and Mercy Sosanya, 2015, in partnership with Mozilla Clubs and Abubakar Tafawa Balewa University hosted the Techstart Hackathon in Nigeria to get more women into coding.

91% of mentors felt inspired to further impact their communities and 82% of mentors agreed that the program has created a dialogue within their network about the importance of community engagement. Among the mentors who went to 2018 delegation trips, 70% have advocated for initiatives to support women in their workplace and 65% have increased their volunteering and community service activities because of their experience as TechWomen mentors.

25% of mentors have started mentoring girls and women in other countries because of their TechWomen experience and an additional 50% are planning to do so.

89% of the 2018 delegates believe that as a result of the delegation activities the host communities’, particularly women and girls, find the STEM fields to be more relevant to their lives. Delegates also created positive change in how the host community members see women’s ability to understand STEM compared to that of men and women’s fit for STEM careers.

“Some participants were in mechanical engineering, and when they talked to me they get this belief that they can be successful as women mechanical engineers as well. Especially when you share your challenges and how you overcame those challenges is something that they learn from.” Mentor, 4 years, Delegation trip

“The girls got introduced to inspiring ladies who are now role models for them. One of the young ladies in [Egypt] told me how she was touched by [2015 fellow Dr. Nancy Cheseto’s] story and she now believes that no matter how hard your life is you can pursue your dream and get what you want by being passionate and working hard.” Fellow, 2016, Delegation trip

“It’s one thing to share your experience with fellow STEM professionals and mentees in your country and another thing when they see TechWomen delegation come to them. It inspires more women and girls, and strengthen the goals of the TechWomen program. The impact is intense and we’ve seen women girls make a commitment to live their dreams and be solutions to their community.” Fellow, 2016, Delegation trip

This section is informed by findings from the participants of the 2018 delegation trips to Egypt and Nigeria, a survey from the Year 7 participants who responded to the alumni survey 1 year after the program completion, and the online qualitative data collection on fellows from all previous cohorts.
What’s Next?

The evaluation team found the program to be successful in achieving its first goal to impact the participants’ professional capacity through improved technical and personal skills. The mentors’ professional capacity has also been increased via their gains in intercultural and mentorship skills.

The social network analysis (SNA) confirmed that the program has been successful in achieving the second goal: the networks between the participants, their mentors, and other U.S. STEM professionals expanded in number and quality of connections. Conducting SNA as part of an impact evaluation will help evaluate the longevity and analyze transformation of the networks after the program.

The TechWomen program increased mutual understanding and ability to work across cultures through interaction with and shared projects between people from different countries, including the U.S. Participants indicated intention for strengthening the ties between the U.S. and their countries further through collaborations, and there is evidence of such collaborations from alumni and delegation surveys. However, a systematic impact evaluation would be better able to analyze the program impact on strengthening ties between the U.S. and program countries.

Similarly, the evaluation team has evidence that the program is further impacting the participants’ communities through participants’ post-program work and the delegation trips. These findings, however, come from secondary data and surveys of a small sample of participants and require more systematic research.

The evaluation and program teams have reviewed the recommendations on program implementation, identified appropriate solutions, and developed action plan for each of them. These solutions will be implemented starting with the 2018 program.

“Stay as fantastic as you are! The program exceeded my expectation by too many levels.” EL, Middle East and North Africa

“TechWomen program is an essential opportunity for all women, please keep going and never stop this life changing opportunity.” EL, Middle East and North Africa

“My advice to the IIE would be to ensure that the TechWomen program continues to be sustained. The impact it is creating now may seem small but I assure you it would be massive in the next 10 years” EL, Sub-Saharan Africa

“Thank you for equal rights for women with disabilities, I have weak hearing from my childhood. But it wasn’t [an] obstacle to participation in the program. I hope more women with disabilities will participate.” EL, South and Central Asia

“TechWomen is an amazing platform to help young women reach their potential all around the world. These ladies end up teaching us just as much, if not more!” Cultural Mentor