



# Evaluation Report

Bureau of Educational and Cultural Affairs  
Evaluation Division

## Evaluation of the TechGirls Program

October 2021

The Bureau of Educational and Cultural Affairs' (ECA)'s Evaluation Division has been at the forefront of the Department of State's monitoring and evaluation (M&E) efforts since its creation in 1999. Throughout its 20 years, the Evaluation Division has built a robust M&E system to ensure that ECA program staff and senior leadership benefit from timely performance data that they can utilize for evidence-based decision-making.

For a complete listing of ongoing evaluation projects, an archive of completed reports, and resources for conducting evaluations, visit the ECA Evaluation Division website: <https://eca.state.gov/impact/eca-evaluation-division>

If you would like additional information or have any questions, please contact us at [ECAevaluation@state.gov](mailto:ECAevaluation@state.gov)

## **Evaluation of the TechGirls Program:**

**The purpose of this evaluation is to determine how successful TechGirls is in meeting program goals and inform programmatic decision-making.**

**October 2021**

IDIQ Contract Number: D17PC00475

Task Order Number: 140D0420F0308

**Submitted to:**

Natalie Donahue

Chief of Evaluation, Bureau of Educational and Cultural Affairs (ECA) and Contracting Officer's Representative

**Prepared by:**

Dexis Consulting Group

**DISCLAIMER**

The authors' views expressed in this publication do not necessarily reflect the views of the United States Department of State or the United States Government.

## CONTENTS

ACRONYMS.....	v
EXECUTIVE SUMMARY .....	vi
INTRODUCTION .....	1
METHODOLOGY .....	3
FINDINGS .....	4
CONCLUSIONS.....	22
RECOMMENDATIONS.....	29
ANNEXES.....	32
ANNEX A: STATEMENT OF WORK .....	32
ANNEX B: METHODOLOGY.....	44
ANNEX C: QUALITY ASSURANCE & SURVEY ADMINISTRATION PLAN .....	50
ANNEX D: REPORT ON PROTOCOLS & USE OF DATA COLLECTION	
INSTRUMENTS PHASE 1 & 2.....	52
ANNEX E: SOCIAL NETWORK ANALYSIS.....	57
ANNEX F: RIPPLE EFFECT MAP.....	67
ANNEX G: CONFLICT OF INTEREST CERTIFICATIONS .....	68
ANNEX H: DATA COLLECTION INSTRUMENTS .....	69

## ACRONYMS

CAR	Central Asia Region
COVID	Coronavirus Disease
DC	District of Columbia
DOS	U.S. Department of State
ECA	Bureau of Educational and Cultural Affairs
FGD	Focus Group Discussion
HF	Host Family
IP	Implementing Partner
ISO	International Organization for Standardization
JSH	Job Shadow Host
KII	Key Informant Interview
MENA	Middle East and North Africa
MSC	Most Significant Change
NIST	National Institute of Standards and Technology
OMB	Office of Management and Budget
PII	Personally Identifiable Information
REM	Ripple Effect Mapping
SNA	Social Network Analysis
STEM	Science, Technology, Engineering, and Math
TW-TG	TechWomen-TechGirls
U.S.	United States

## EXECUTIVE SUMMARY

The TechGirls program, established in 2012 and sponsored by the United States (U.S.) Department of State's (DOS) Bureau of Educational and Cultural Affairs (ECA), is a four-week summer exchange program designed to empower and inspire girls (ages 15-17) from the Middle East and North Africa (MENA), the Central Asia Region (CAR), and the U.S. to pursue higher education and careers in science, technology, engineering, and math (STEM) fields.

**Purpose of the Evaluation:** The purpose of this evaluation, conducted by Dexis Consulting Group (Dexis), is to determine how successful TechGirls is in meeting program goals and inform programmatic decision-making. The evaluation assesses the strength and sustainability of professional and educational networks created by the program, the extent to which these networks have been leveraged for collaborations to enact change, and the impact of the program on educational trajectories and professions of alumnae.

### Key Evaluation Questions:

1. To what extent is the TechGirls program structured in a way that would contribute to achieving program goals?
2. To what extent has the interaction with Americans influenced the educational and professional trajectory of TechGirls alumnae?
3. How are TechWomen and TechGirls alumnae establishing and maintaining networks with other TechGirls alumnae? By country? By region?
4. What challenges have TechGirls alumnae experienced in sustaining these networks?

**Methodology:** This evaluation covers the alumnae cohorts from Algeria, Egypt, Jordan, Lebanon, Morocco, Palestinian Territories, Tunisia, and the U.S. from 2012-2019, representing 231 total alumnae. Other key stakeholders include TechWomen alumnae, program staff, host families (HFs), job shadow hosts (JSHs), community stakeholders, national STEM experts, and U.S. embassy personnel. Data collection methods include a document review, surveys, key informant interviews (KIIs), and focus group discussions (FGDs). Specific evaluation techniques utilized include ripple effect mapping (REM) and social network analysis (SNA).

**Key Findings:** Overall, the TechGirls program is achieving program goals of empowering and inspiring girls to pursue STEM, with some program components (e.g., tech camp, job shadow day) being more impactful on foreign participants than others (e.g., community service, follow-on project). Foreign alumnae identified a wide range of program impacts on their lives, including on their sense of agency, interpersonal or soft skills, education, networks, and careers. The program also helped intensify participants' interests, abilities, and awareness in STEM.

The influence of Americans on foreign TechGirls' educational and career trajectories is uncertain, in large part because program design only allows for very limited opportunities for engagement with Americans. For example, the U.S. TechGirls only participated in the tech camp component and only since 2015 and in small numbers (due to program design). Despite the foreign participants' limited engagement opportunities with Americans, foreign alumnae do maintain at least some, typically infrequent, contact with their American peers and host families via social media. The alumnae network clusters by cohort years across countries, and structured activities and projects help foster sustained connections. While the TechWomen are not fully

integrated into the TechGirls' network, they are regarded as role models and potential mentors, and efforts have been made over the past few years to better connect the alumnae of the two programs. Challenges include difficulties in obtaining updated contact information, geographical dispersion of alumnae, and societal and cultural barriers for women pursuing STEM.

**Recommendations:<sup>1</sup>**

Recommendation 1: ECA should consider conducting a pre-program survey of participants about their interests and abilities and, to the extent feasible, tailor program content and activities accordingly.

Recommendation 2: ECA should consider increasing the duration of the program to allow for additional time for components of particular interest and impact.

Recommendation 3: ECA should consider expanding the practical application elements of the tech camp.

Recommendation 4: ECA should consider expanding the program's career development components.

Recommendation 5: ECA should consider increasing engagement with Americans.

Recommendation 6: ECA should consider increasing support for follow-on projects to help facilitate successful implementation.

Recommendation 7: ECA should consider designating one central, virtual communication platform for all TechGirls and TechWomen alumnae.

Recommendation 8: ECA should consider multiplying the number of structured, virtual, and in-person activities, projects, and competitions to facilitate networking and collaboration.

Recommendation 9: ECA should consider further defining roles and responsibilities for the TW-TG clubs.

Recommendation 10: TechGirls should consider including a discussion of how to remain engaged in the program as part of the post-program brief.

---

<sup>1</sup> Several of these recommendations have been incorporated into the design and planning of the 2022 TechGirls program.

# INTRODUCTION

## TechGirls Program Background

TechGirls is a four-week international summer exchange program hosted in the United States (U.S.) and sponsored by the U.S. Department of State's (DoS) Bureau of Educational and Cultural Affairs (ECA). This program is designed to empower and inspire young women from the Middle East and North Africa (MENA), the Central Asia Region (CAR), and the U.S. to pursue higher education and careers in science, technology, engineering, and math (STEM) fields. The program emphasizes hands-on skills development training with American technologists, and consists of a technology camp with interactive labs, leadership clinics, a job shadow day, site visits to technology companies, discussions on STEM education and careers, cultural activities, community service events, and a weekend homestay with an American family. The program's tech camp component is hosted on a U.S. university campus, and participants can explore various educational and professional paths in STEM fields. The program also includes a follow-on component, where, upon their return home, participants plan and implement a peer training or service project in their community to share what they have learned. Program alumnae are expected to form and engage in professional and educational networks related to STEM, with continued collaboration on STEM projects, competitions, grants, and other opportunities. In 2019, TechWomen-TechGirls (TW-TG) Clubs were also established to help foster these networks.

The TechGirls program began in 2012 with participants from nine MENA countries (Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, and Yemen). However, due to security challenges and political instability in Libya and Yemen, since 2014 the program has only engaged participants from the seven other MENA countries. Currently, there are approximately 28 MENA participants each year. Starting in 2015, U.S. girls were selected to join the program, and approximately five American TechGirls have since participated each year. In 2019, the program again expanded to include 24 girls from CAR. Since 2012, TechGirls has trained and mentored a total of 263 girls (ages 15-17) from MENA, CAR, and the U.S.

TechGirls has been implemented by Legacy International since the program's inception in 2012, with the Virginia Polytechnic Institute and State University (Virginia Tech) as a major partner since 2017. Two other organizations have also participated in the early years of the TechGirls program, Wonder-Space Computer & Technology Camp and iDTechCamps. However, they are no longer involved in the delivery of the program and are not included in the evaluation.

## Purpose of the Evaluation

The purpose of this evaluation, conducted by Dexis Consulting Group (Dexis), is twofold: (1) to determine how successful TechGirls is in meeting the program aims identified above; and (2) to inform programmatic decision-making by the ECA program team. More specifically, the evaluation will assess the strength and sustainability of professional and educational networks created by the program, the extent these networks have been leveraged for collaborations to enact change, and the impact of the program on educational trajectories and professions of alumnae. This evaluation will assist DOS, the Office of Management and Budget (OMB), the U.S. Congress, and others in formulating evidence-based decisions regarding future program



planning and design, budget, and policy issues.

This evaluation covers the alumnae cohorts from Algeria, Egypt, Jordan, Lebanon, Morocco, Palestinian Territories, Tunisia, and the U.S. from 2012-2019, representing 226 total alumnae (the alumnae from CAR, Libya, and Yemen are not included in this evaluation).

## Evaluation Questions

This evaluation endeavors to answer the following overarching questions:

1. To what extent is the TechGirls program structured in a way that would contribute to achieving Program goals?
  - 1.1. How, if at all, has the TechGirls program affected participants' knowledge, attitudes, and practices?
  - 1.2. What has been the impact of the TechGirls program on the educational and professional trajectories of TechGirls alumnae?
2. To what extent has the interaction with Americans influenced the educational and professional trajectory of TechGirls alumnae?
  - 2.1. How have TechGirls participants maintained networks with Americans from the program (i.e., job shadow and site visit host companies, host families, American TechGirls)?
3. How are TechWomen and TechGirls alumnae establishing and maintaining networks with other TechGirls alumnae? By country? By region?
  - 3.1. What type of support are alumnae receiving from the TechGirls alumnae network? (financial, exchange of resources, mentorship, etc.)
  - 3.2. To what extent are TechWomen alumnae serving as mentors to TechGirls alumnae following their return home?
4. What challenges have TechGirls alumnae experienced in sustaining these networks?
  - 4.1. How have environmental and structural factors such as conflict, non-permissive environments, government, and the country's tech sector shaped TechGirls alumnae network(s)?

## Navigating COVID-19 Restrictions & Challenges

Due to mobility and safety considerations related to the COVID-19 (coronavirus disease) pandemic, Dexis has worked with ECA to adjust aspects of the original evaluation design. The most substantial changes were to the overseas fieldwork, as it was determined not feasible to travel internationally for in-person data collection (originally planned for Tunisia, Algeria, and Jordan). Instead, Dexis contracted seven local researchers (one per evaluation country) to coordinate FGDs and KIIs and assist with survey administration. The team designed the FGD guide with in-person and virtual options, and ultimately all FGDs were conducted virtually. All KIIs were also conducted virtually or by phone, and all survey administration was done via phone, web-based communication platforms, or the online platform. In the second phase of domestic data collection, during late spring 2021, the team conducted all evaluation activities virtually and via phone rather than in-person.

## METHODOLOGY

This evaluation employed a mixed method approach in data collection and analysis to answer the key evaluation questions. As little baseline data was available, much of the evaluation's rigor came from collecting data from the range of stakeholders and triangulating the results. We utilized creative data collection approaches including social network analysis (SNA)<sup>2</sup> and ripple effect mapping (REM)<sup>3</sup> to obtain multifaceted and robust data.

### Primary Data Collection Methods

The following sections outline each of the stakeholder groups included in the evaluation, contact strategies, the expected data collection methods, key data to be gathered from each, and potential risks and associated mitigation strategies. See Annexes E and H for further information on protocols and use of data collection instruments.

Table 1: Data Collection Methods

Data Collection Method	Number of Respondents	Response Rate	Average Response Time
Implementing Partner Key Informant Interview	6	N/A	43 minutes
Implementing Partner Survey	16	40.0%	8 minutes
Alumnae Survey	140	60.6%	45 minutes
Alumnae Focus Group Discussion	40 (7 groups)	N/A	91 minutes
U.S. Embassy Personnel	14	N/A	29 minutes
Community Stakeholders	14	N/A	42 minutes
National STEM Experts	22	N/A	44 minutes
TechWomen Alumnae Survey	63	N/A	N/A
Job Shadow Host Survey	12	29.3%	9 minutes
Host Family Survey	16	24.6%	30 minutes

### Data Analysis

The Dexis team conducted comprehensive quantitative and qualitative analysis as the data became available. The team analyzed quantitative data using STATA for descriptive statistics and subgroup analysis and NetDraw for social network analysis. Dexis coded qualitative data in Excel by evaluation question. Each local data collector coded their transcripts, and the Evaluation Team Leader reviewed each of the transcripts as well to ensure codes were used consistently. As a second round of analysis, the team drew on FGD and KII data to analyze the ripple and spread effects on communities and on stakeholders other than the alumnae. The team examined the various impacts the alumnae cited, categorized them into overarching themes (educational, professional, social, etc.), and generated a graphic (Figure 1, below) showing the flow of those impacts. Each independent data analysis stream was triangulated through various means including multi-coder checks and verification, as well as team-wide discussions about interpretation of data.

<sup>2</sup> SNA is the process of investigating social structures using networks and graph theory. It characterizes networked structures in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them.

<sup>3</sup> REM is a participatory evaluation technique that engages stakeholders to visually map program efforts and results to collect impact data.

## Limitations

Nonresponse and limited stakeholder contact information were the main challenges in data collection. Another issue with obtaining responses from certain groups on the domestic data collection side was a lack of any sense of connection to the program. The duration of the host family visit and the job shadow components were so short that some potential respondents said they had no recollection of ever having had a role in the program. Others indicated that they had hosted students in the past but had no idea if it was for TechGirls or another program. The TechGirls brand had no meaning to them.

Similarly, although 63 TechWomen responded to the question about linkages with TechGirls, only 17 provided valid responses. Based on the answers provided, it seemed about half did not recognize TechGirls as a companion ECA program to TechWomen.

Another key limitation was the inability to travel or gather stakeholders in person due to the COVID-19 pandemic. Given the restrictions on travel and meeting in non-family groups, we had to conduct focus groups virtually instead of in person, which required the team to modify our approach to ripple effect mapping. One group was able to create a map virtually during the FGD, but most were not. Therefore, the information provided in the report is more limited than it likely would have been. Similarly, all KIIs were conducted virtually rather than in-person. In addition, all training for data collectors was held virtually, as were debriefings for U.S. Embassies.

## FINDINGS

### EQ 1. To what extent is the TechGirls program structured in a way that would contribute to achieving Program goals?

*Finding 1: Foreign alumnae identified a wide range of program impacts on their lives, including on their sense of agency, interpersonal or soft skills, education, networks, and careers.*

Despite being a short program, TechGirls has a broad impact on its foreign alumnae (shown in figure 1 below). The program engages young women at a key developmental juncture. The experience of traveling abroad and living outside of one's family structure itself is meaningful for personal growth, as the alumnae termed it. These experiences also create opportunities for young women to gain interpersonal or soft skills, which upon reflection, they realized contributed to the development of a wide range of other opportunities and capacities, as shown by the extensive list of unexpected outcomes and linkages between expected and unexpected outcomes in Figure 1. In focus groups, TechGirls alumnae talked about how the program supported their personal growth, the development of soft skills, and networking opportunities. Beyond some of those they expected (increased confidence and independence), they found they had greater self-esteem and were more willing to take risks as a result of the program. These two characteristics contributed to unexpected educational opportunities (scholarships, internships, fellowships, and study abroad opportunities) and to career opportunities (research and entrepreneurship opportunities) beyond what they expected from the program (job readiness and awareness of STEM career options, for example).

They have an opportunity to reflect on the cultural aspects of those skills (both individually and as a group) and to build leadership skills through the leadership training component of the

program. As shown in Figure 1, alumnae felt more connected to their own communities after the program, and they used their networking and leadership skills to advocate for girls' and women's rights.

Program staff, host families, and job shadow hosts affirmed that the foreign participants gained confidence, technical knowledge and skills, communications skills, and leadership skills as well. The impacts on education, career, and networks will be discussed throughout the report.

The U.S. alumnae reported a different range of impacts. The most commonly reported impact was broadening their awareness of other cultures and increasing their appreciation for the benefits of being American. Approximately one third of U.S. respondents reported that they established lasting friendships through the program with either U.S. or foreign participants, and 12.5% also noted an increased understanding of how computer science can be applied outside of software engineering.

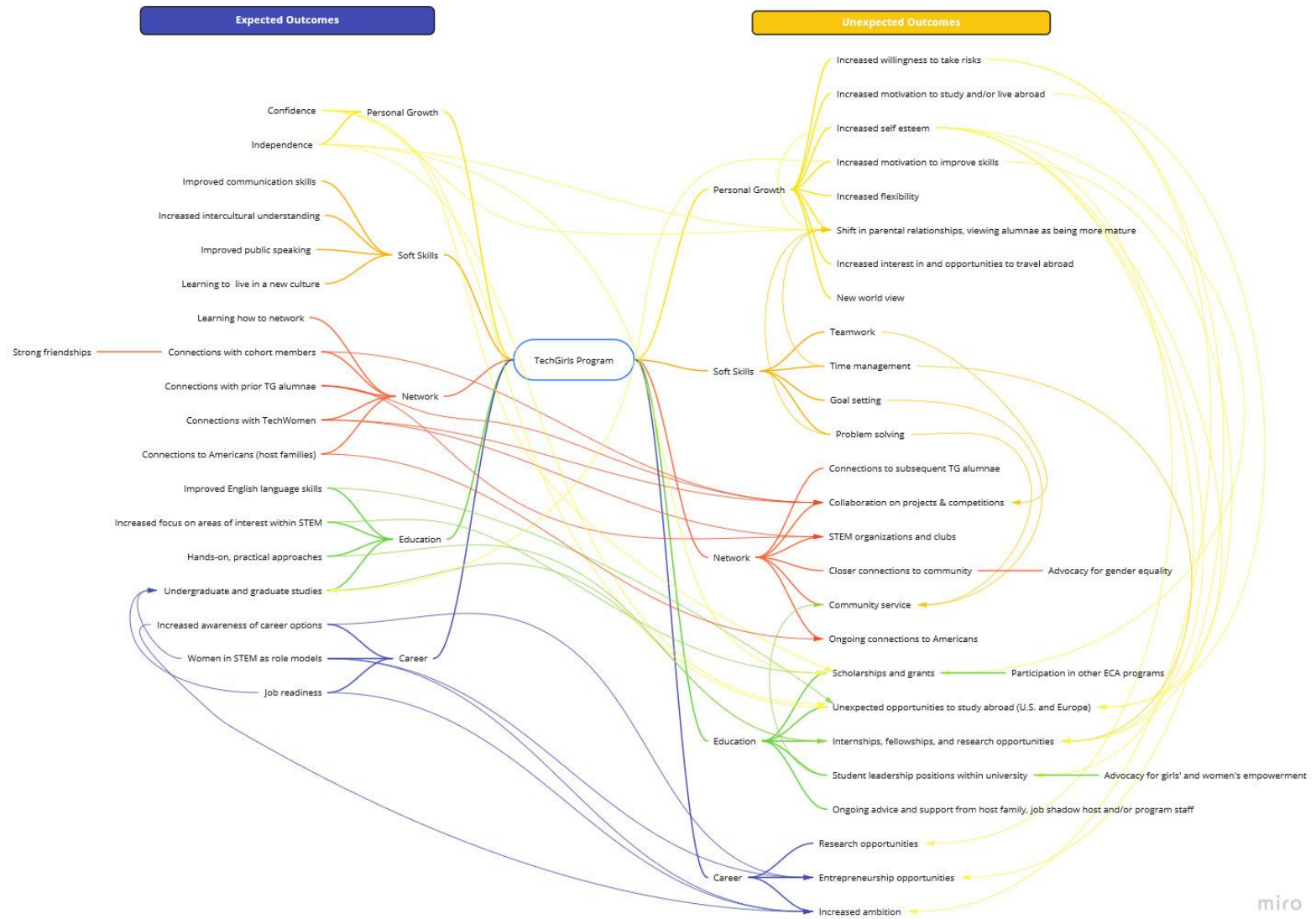


Figure 1: Reconstructed Ripple Effect Map

**Finding 2: The program helped intensify participants' interests, abilities, and awareness in STEM.**

Most respondents (77.9%) reported being more interested in pursuing STEM fields following their participation in the TechGirls program. Only 2% reported being less interested in STEM after the program (all foreign alumnae), and they ultimately pursued studies and careers outside of STEM.

Additionally, 79.6% of foreign respondents and 76.5% of U.S. respondents indicated the program had helped improve their STEM skills. Of the foreign respondents who reported the program did *not* help improve their STEM skills, most were from Egypt, Jordan, Tunisia, and Lebanon. Some alumnae, particularly those in Egypt, felt they already had a good understanding of STEM skills and content, so the tech camp courses were not challenging or advanced enough. Conversely, a few alumnae from Algeria felt the course content was *too* advanced. Irrespective of the course level, many alumnae reported the course and program pace was too quick and intense, and felt they would have benefited from a less packed schedule to learn more deeply. Program staff similarly noted that they had to be creative and innovative to find ways to engage the participants quickly so they could achieve the goals of the program, a task that many of the staff in the program assistant and teaching assistant positions found overwhelming.

Additionally, some alumnae, particularly from Lebanon, reported difficulties in applying the STEM skills they learned in the program to their education at home as their courses at home emphasize theoretical knowledge over practical skills. Finally, a substantial portion of alumnae reported a significant (61.8%) or moderate (27.1%) change in their awareness of opportunities in STEM. Almost all of those reporting no change (80.0%) and many of those reporting only a slight change (29.4%) were U.S. participants who felt they have extensive knowledge on educational and career options in STEM prior to the program.

**Finding 3: The tech camp and job shadow day are the most impactful program components, while the follow-on project is**

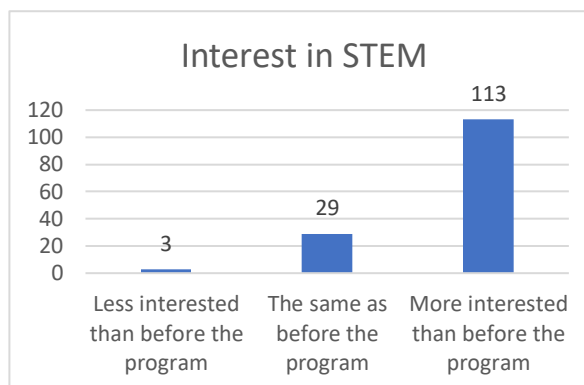


Figure 2. Reported Interest in STEM

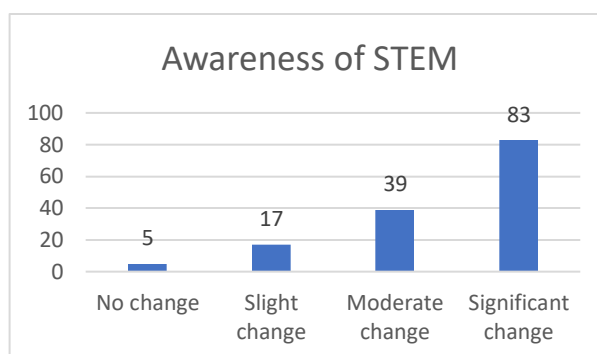


Figure 3. Reported Change in Awareness of STEM

Most and Least Impactful Program Components			
Program Component	Avg. Rank (1-7)	% Rated Impactful	% Rated Not Impactful
Tech Camp	2.41	77%	17%
Job Shadow	3.33	58%	29%
Host Family	4.11	43%	39%
Cultural Activity	4.17	38%	46%
Community Service	4.32	29%	50%
Interaction with Americans	4.43	32%	50%
Follow-on Project	4.87	29%	62%

Table 2: Ranking Impact of Program Components



valued the least.

Foreign respondents ranked<sup>4</sup> the tech camp (76.7%) as the most impactful program component, followed by the job shadow day (57.9%), and host family stay (43.0%). An alumna explained, “[The] tech camp was very impactful because it was a great opportunity to discover different fields in technology.” Conversely, respondents ranked the follow-on project<sup>5</sup> (61.7%) as the least impactful component, along with community service (49.6%) and interaction with Americans (50.4%).

The experience for U.S. TechGirls was markedly different, with all respondents ranking interaction with international participants as the most impactful component of the program, followed by the cultural activity and the tech camp. They do not participate in the follow-on projects, host family stays, or the job shadow component of the program, and they therefore ranked those the least impactful.

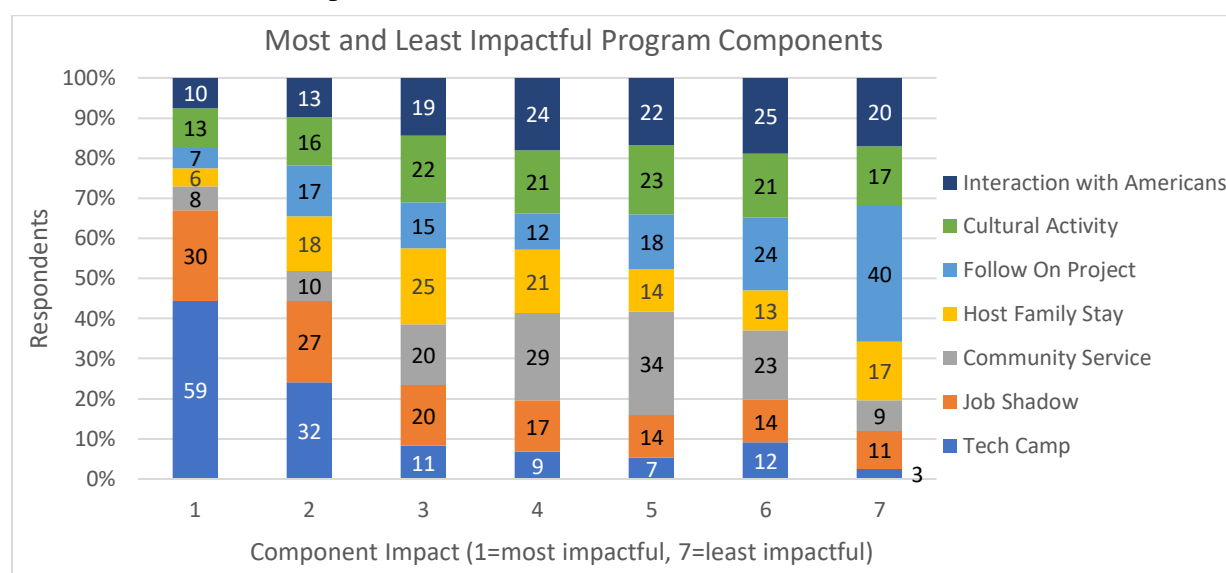


Figure 4. Reported Impact of Program Components by Foreign Alumnae

Finding 4: The TechGirls brand is weak, particularly among U.S. stakeholders.

As noted in the Limitations section above, a majority of the program staff, host families and job shadow hosts were unresponsive, and that appears to be because they lack a sense of connection to the program. As one host family wrote, “It has been at least five years since I hosted international guests, and I don’t know even back then whether any of my guests were in the TechGirls program.” Unlike host families, the job shadow hosts did not seem to have any confusion over the program, but many clearly did not feel any close connection to the program as one might hope.

<sup>4</sup> Survey respondents were asked to rank the seven components from most to least impactful, with one meaning most impactful and seven meaning least impactful. For the purposes of this analysis, components ranked 1-3 were considered impactful, with components ranked 5-7 were considered unimpactful.

<sup>5</sup> The impact of the follow-on component, cultural programming, and American interaction varied by country.

**Finding 5: Stakeholders receive too little information about the participants and their interests in advance of their visit.**

All U.S. stakeholders indicated that more information about the participants would be useful in tailoring the activities for their experience. For example, teaching staff and job shadow hosts felt that more information about the participants' educational and professional interests would be useful in leveling the tech camp activities correctly and in highlighting the most relevant information for participants in their job shadow experiences. Host families also felt knowing a bit more about hobbies would also be useful in setting up experiences that the participants would appreciate.

**EQ 1.1. How, if at all, has the TechGirls program affected participants' knowledge, attitudes, and practices?**

**Finding 6: Participants learned and applied valuable soft skills in addition to STEM skills.**

A vast majority of respondents indicated the program improved their leadership (84.5%), networking (73.9%), and intercultural communication skills (83.1%). A slightly smaller number (62.7%) indicated the program helped improve their public speaking skills. Soft skills are an important piece of the program's impact – as one alumna noted, “[TechGirls] helped me break out of my comfort zone... [it] has helped me grow in ways I couldn't imagine.”

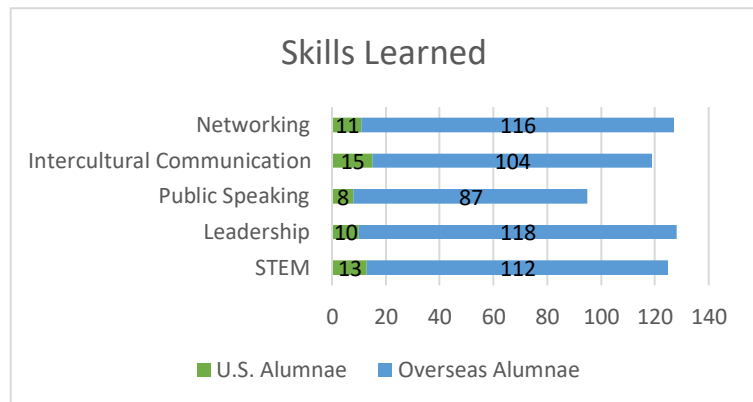


Figure 5. Skills Learned During the Program

Respondents also found the skills to be transferable, and most (92.3%) were able to apply the skills they learned to situations and contexts outside of the program. As an alumna noted, “The TechGirls experience has fed the starvation of curiosity I have for the STEM field and developed my leadership and soft skills as well as gave me the motivation to keep going and to give back to my community.”

**EQ 1.2. What has been the impact of the TechGirls program on the educational and professional trajectories of the TechGirls alumnae?**

**Finding 7: The program helped participants decide on a university major, with most alumnae pursuing further studies in STEM fields.**



Most program alumnae (77.5%) reported pursuing a degree in STEM fields.

Analyzed by program year and country cohorts, the largest numbers of alumnae who have studied or are studying STEM subjects are found in the 2014 cohort year (85.7%) and in Morocco (80%).<sup>6</sup>

Alumnae also reported the program helped them to decide on their university major or solidify their decision to pursue studies and a career in a particular field. As one alumna stated, *“I think seeing women in STEM has boosted my confidence and it made me personally consider an engineering degree, which I ended up getting.”*

Additionally, alumnae credited the program with enhancing their competitiveness for other educational and professional opportunities such as grants, scholarships, and jobs. Another alumna reported, *“The TechGirls program was a plus on my resume that qualified me to get a full scholarship at American University of Beirut.”*

**Finding 8: The program increased participants’ confidence to pursue a career in STEM.**

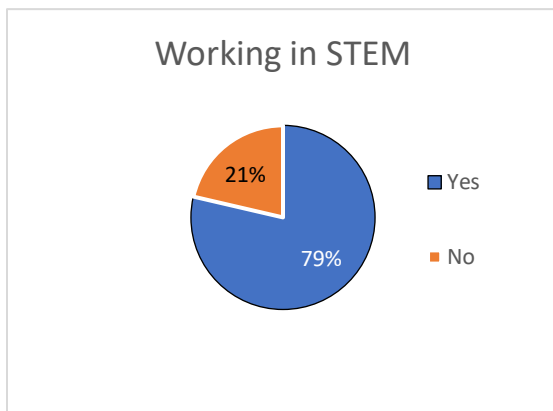


Figure 7. Alumnae Reported Working in STEM

*boys, but I met inspiring girls and women who work in NASA and tech companies...the experience assured me that this is what I will be doing.”* Another alumna commented, *“[TechGirls] opened the way to believe that women can also [work in] STEM fields...it gave me*

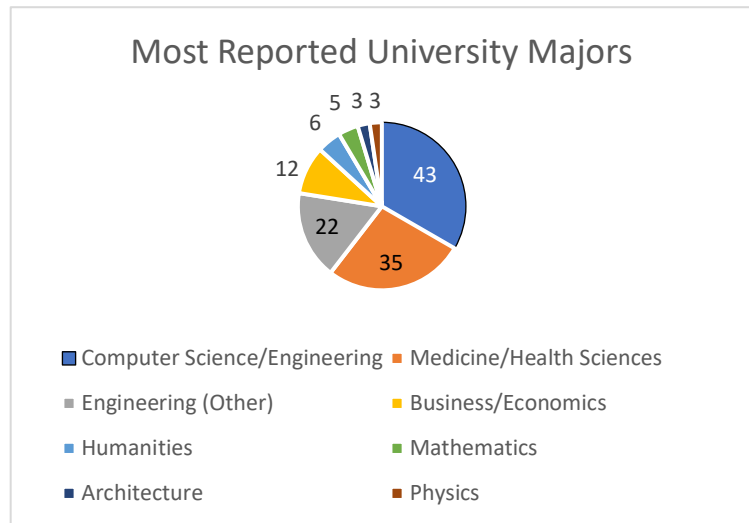


Figure 6. Most Commonly Reported Alumnae Majors

<sup>6</sup> Upon initial analysis, the incidence of pursuing a STEM related major significantly varied by program year ( $p=.010$ ), however this significance disappeared when alumnae from 2019 were excluded from the analysis. Since a large proportion of the 2019 cohort has not yet begun university and/or have not yet decided on a major, the team dropped the 2019 observations for this particular analysis of difference.

*the confidence to pursue a career in technology.”*

## **EQ 2. To what extent has the interaction with Americans influenced the educational and professional trajectory of the TechGirls alumnae?**

*Finding 9: Interaction with Americans was a critical element for some foreign participants, but for others it was unimportant.*

While IPs suggested that interactions with Americans are a critical piece of the program, fewer than a third (31.6%) of the foreign alumnae rated interaction with Americans among the top three most impactful program components. A larger portion (50.4%) reported interaction with Americans was one of the *least* impactful components. As one alumna noted, *"Although we met Americans from the program...our interaction was limited...I don't feel like I remember them enough."* This perspective was reinforced by the U.S. alumnae survey responses, in which they indicated that they had less interaction than they would have liked with the foreign participants, and few forged lasting linkages. Some foreign alumnae suggested including the U.S. participants throughout the duration of the program, rather than just the tech camp portion, to increase interaction.

In FGDs, the foreign alumnae also expressed a range of opinions about the importance of interaction with Americans, and patterns emerged that were not clear in the survey data. For example, alumnae from the Palestinian Territories reported a greater influence on their educational and professional trajectories than in the other countries, and they particularly valued the opportunity to travel and to enhance their networks. Alumnae from Egypt reported the experience helped them to improve their English language skills and piqued their interest in potentially studying abroad in the U.S.

However, when looking specifically at the host family stay, a little under half (43.0%) of foreign alumnae rated it as one of the top three most impactful program components, despite its short duration (one weekend). As one alumna said, *"The family stay was an amazing part of the program...interaction with Americans helped understand their mentality and get passionate about things and about studying in the U.S. and their lifestyle."* Most host families who responded thought it was meaningful for the alumnae, however, most had little evidence to support their feelings on the matter.

Almost as many foreign alumnae, 38.6%, found the host family stay unimpactful as found it impactful. In one case, an alumna noted her host family was originally from her own home country, and so she felt disappointed that she had less exposure and opportunity for interaction with Americans than other participants did. Even among those host families who thought it was impactful, some were aware of the very limited exposure to U.S. culture and opportunities to influence their educational and professional trajectories that the program provides, as one host family respondent stated below.

*The girls really need more time to be with families to learn more about real life in the [United] States. Since we are doing nothing to encourage these girls to come to the U.S. for their future studies and/or careers, there must be an alternate purpose for this program. As a host family, we see it as our responsibility to make these girls feel at home here. We want them to go back to their countries with a picture of Americans as welcoming, caring, loving, and gracious people. The host families are the ones who give these girls their lasting impressions of America.*

*The old adage of, "people will forget what you said, but they will never forget how you made them feel" is important to us as host families. We take this role seriously, and [we] do our best to make these girls part of our extended family. As you can tell from the number of girls we are still in contact with, it is important to us to maintain that contact, to show continued interest in them even though they are on the other side of the ocean, and to be empathetic as they struggle in their daily lives (in some cases, simply to survive the injustices in their countries).*

*Finding 10: The U.S. education model emphasizes practical, hands-on exposure to a range of STEM fields, to which participants may not have ready access in their home countries.*

In FGDs, foreign alumnae identified that a critical factor in the program was the broad exposure to STEM subjects, as well as the program's practical, hands-on approach to learning. Specifically, alumnae from the Palestinian Territories indicated interest in attending university in the U.S. due to the approach to education and availability of high-quality laboratories. This experience gave them an incentive to apply to U.S. universities after completing their secondary school studies. As one alumna stated, *"I went to Virginia Tech and I saw the physics lab, it was an unforgettable experience that made me sure that I want to study physics."*

Another alumna from Lebanon shared, *"[TechGirls] showed me the importance of empowering girls to pursue their interests in tech and encouraged me to apply to U.S. colleges after being on campus in American University and Virginia Tech. I'm currently [studying] Electrical Engineering at [a U.S. university] and mentor girls pursuing Computer Science or Engineering."*

Several alumnae noted their own STEM-related education at the secondary and tertiary levels was largely theoretical, as few schools and universities in the region have extensive laboratory facilities. In Lebanon, alumnae felt that while the TechGirls experience had enriched their understanding of STEM fields with hands-on opportunities, they faced difficulties in transitioning back to the educational system at home.

*Finding 11: Although the job shadow experience is impactful, it is unclear if it influences the educational and career trajectories of the alumnae.*

Although the survey respondents reported the job shadow day was an impactful component, the limited contact with job shadow hosts left the FGD participants uncertain as to the influence of this experience on their educational and professional trajectories. As one alumna shared, *"Personally, I didn't remain in contact with the job shadow host. I had contact with them only during that day. It was a nice day and that is all."*

Some of the job shadow experiences were highly focused on STEM, as one Moroccan alumna said, *"My job shadow was at AT&T. I think that it was a mixture of STEM and entrepreneurship. I had the opportunity to meet the head of the company. We met some ladies, and that was very important, and they were working in a STEM field."*

Other alumnae, however, observed that their job shadow experience was not directly related to STEM, and instead focused on other areas, such as entrepreneurship. As another Moroccan alumna shared, *"For my case, I can't really remember the company. It wasn't really related to STEM. I think it was more about showing the importance of women taking the lead in entrepreneurial work."* It is not clear the extent to which (if at all) the entrepreneurship aspect of the job shadow experience influenced the alumnae.

*Finding 12: TechGirls may offer a new work-life balance paradigm to many participants.*

Some of the IP staff reported the program provides opportunities for participants to observe how women in the U.S. can balance professional responsibilities in STEM careers with motherhood and family life. One IP staff person explained that she answered questions from the girls about how she managed her full-time job and family life. However, none of the alumnae raised this issue in focus groups or survey responses, so it is unclear if the alumnae consider this to be a takeaway from the program.

**EQ 2.1. How have TechGirls participants maintained networks with Americans from the program?**

*Finding 13: Most American TechGirls alumnae have some contact with their MENA peers, but contacts are infrequent.*

Most U.S. TechGirls, 75.0%, reported that they maintained contact with other TechGirls after the program, but only half reported the names of any other TechGirls with whom they were in contact regularly. Only four of the U.S. alumnae reported contact with more than one other person. This is reflected in the social network analysis findings as well, with most U.S. alumnae being isolated from the network or peripheral to the network and none being key nodes maintaining the integrity of the network.

Primary modes of contact among American and foreign alumnae are via social media, and contacts are infrequent – monthly or less often. Those who have tried to remain in contact with the foreign alumnae reported time differences, the business of student life, and language barriers as the key limitations in their attempts to remain in contact.

*Finding 14: Most alumnae are in contact with their host families, but fewer have remained in contact with their job shadow hosts.*

Many alumnae (54.5%) are still in contact with their host families and regularly exchange holiday greetings or short life updates. As one alumna notes, *“I gained a host family, who I’m still in contact with to this day, four years later, I’m very grateful to have them in my life.”* A larger percentage, 77%, of host families said they were still in touch with the alumnae (though only half of those were able to list the names of the alumnae). Most contact between program alumnae and the Americans they met occurs via social media, which dictates the structure of these interactions. Three host families, however, reported that they had provided advice on education and career options in the United States.

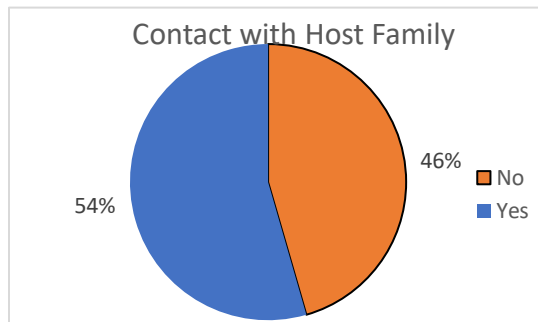


Figure 8. Alumnae Reported Contact with HF

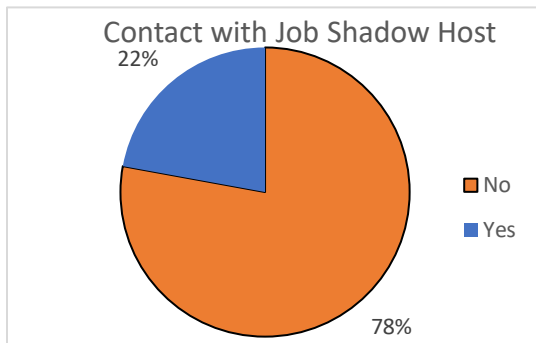


Figure 9. Alumnae Reported Contact with JSH

Only a small portion of alumnae (22.1%) reported they were still in contact with their job shadow hosts, and only one job shadow host reported she was still in contact with any of the alumnae (two, through LinkedIn). Some alumnae reported they tried to remain in contact with their job shadow hosts but did not receive a response. Others reported their assigned job shadow company did not align with their own professional goals, and so they did not feel a need to try to stay in touch. In pilot interviews with job shadow hosts, several reported they were not aware they could continue contact with the participants and

did not share contact information with each other during the job shadow day. The lack of ongoing contact has two primary sources: (1) the current one-day structure of the job shadow component; and (2) a mismatch between the hosts' work and the participants' interests in many cases. The job shadow hosts have a very short-term, largely superficial interaction with the participants, and the one-day exposure does not build meaningful relationships or extend the alumnae's networks once they return to their home countries.

### EQ 3. How are TechWomen and TechGirls alumnae establishing and maintaining networks with other TechGirls alumnae? By country? By region?

#### Finding 15: Most TechGirls alumnae stay in touch with each other.

Nearly all foreign respondents (96.0%) reported maintaining contact with other program alumnae, as did 75.0% of U.S. TechGirls. Most (65.9%) reported they had no difficulty in maintaining contact with other TechGirls, as one alumna commented, "[The most important outcome of the program is] the friendship that I made with most of the TechGirls. I grew my network with great people from all over the world."

A smaller portion of respondents (30.3%) indicated they had moderate difficulty keeping in touch. Only a few (3.8%) reported extreme difficulty in maintaining contact. Alumnae reported various reasons for difficulties in maintaining contact, including: becoming busy with other school or work commitments, feeling there was a lack of shared experiences, limited ways to remain engaged after the program, geographical dispersion making it difficult to see others in person or coordinate virtual meetups across time zones, and changing or outdated contact information.

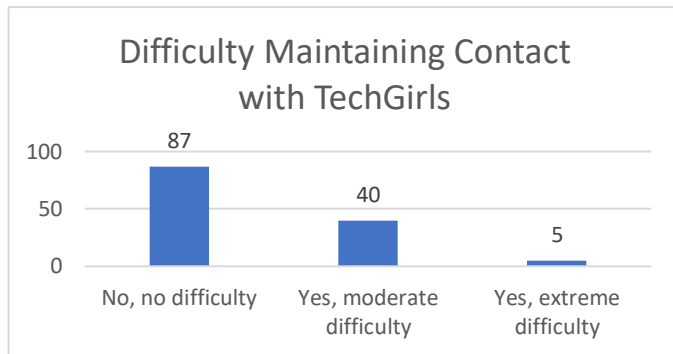


Figure 10. Alumnae Difficulty Maintaining Contact

Contrary to what many alumnae in FGDs reported about difficulties in obtaining updated contact information, one respondent in Morocco indicated that Legacy International maintains a roster where the TechGirls can update their contact information, and therefore she felt she could obtain contact information of any other TechGirls alumna at any time. In some countries, including



Tunisia and Morocco, focus group respondents said the connections between TechGirls alumnae are strongest when they first return, but weaken over time. However, it seems participation in the TW-TG clubs may help mitigate the weakening of connections over time.

*Finding 16: The TechGirls network is a weak, unified network that clusters by cohort year.*

The TechGirls alumnae network, overall, is a single network, with connections linking alumnae from all program years and all participating countries. The network clusters by cohort year, meaning girls from the same or adjacent cohort years tend to be in contact with each other irrespective of home country. There is much less direct contact among girls from cohorts several years apart. More recent cohorts (for example 2019 and 2018) have more frequent communications and tighter linkages, while alumnae who participated in earlier years of the program communicate less frequently. Overall, however, the network is weak, with a small number of connections relative to the potential number of connections that could occur within the network. It is held together by interlocking cliques.

In any network, some people are centrally located, and others occupy the periphery, and for TechGirls, 34 alumnae serve as key nodes who keep others connected to the wider network. These 34 alumnae, representing all countries and all years, reported an improvement in their leadership (90.6% compared to 84.5%) and networking skills (81.3% compared to 73.9%) than alumnae overall. This difference may partially explain both the motivation and the commitment to maintaining contact.

Despite this, the 34 connector alumnae are not necessarily those who have the most connections, but rather occupy a key position within the network. Without them, other alumnae would be disconnected from the main network, causing the network to become fragmented rather than remaining as a single unit. For example, 20 of these 34 do not connect large numbers of alumnae, but they are critical for connecting one or two who would otherwise be isolated from the network. The remaining 14, however, are critical connectors. They share a number of key attributes that differentiate these key network nodes from others.

First, all but one reported more connections to other alumnae than other alumnae reported them. For example, one alumna reported contact with 43 other TechGirls, but only 10 other alumnae named her as a contact. This indicates that a level of interest in maintaining contacts, and perhaps a greater sense of connection to the program that they were willing to take the time to enumerate all those connections. Second, the critical connectors have more reciprocal relationships than others. Most of the connections reported were one-way; that is, an alumna reported someone as a contact, but that person did not report her as a contact. But the connectors had some, or in a few cases, many reciprocal contacts.

Another key feature of the 14 critical connector individual networks is that they include several people from their cohort in their own country and in other countries, as well as alumnae from other cohorts in their own country. In some where contact is easier, Jordan and Morocco, for example, these individual networks also include several alumnae from other years in other countries. Where communications are more difficult, such as in Palestinian Territories, Lebanon, and Algeria, those expansions do not seem to occur except rarely.

It is likely that the patterns of connections are derived to a large extent from the rooming arrangements during the program. As no records of roommate assignments were available, however, the team was unable to explore this theory further.

More of the 34 connector alumnae reported difficulty maintaining contact than the alumnae did overall, 34.4% moderate difficulty and 6.3% extreme difficulty. This, however, likely reflects the fact that they made greater efforts to remain in contact with their peers. They mainly cited time zone differences and finding mutual free time as the primary challenges to staying in touch. Their suggestions for strengthening the network include holding more networking events, increasing opportunities to collaborate on projects, and creating a mentorship program.

Another key differentiator for the connector alumnae is their contact with TechWomen: 84.4% of connectors have been in contact with TechWomen, compared to 56.8% overall (see below for further discussion). Most (68.8%) of these alumnae also reported participating in a TW-TG club activity, which is much higher than the participation rate for the general alumnae population.

When program staff are added into the network, the current program coordinator also emerges as a critical connector due to her role in sending out communications to the alumnae.

In total, 26 alumnae (two from Algeria, four from Egypt, two from Libya, one from Morocco, two from the Palestinian Territories, one from Tunisia, seven from Yemen, and seven from the U.S., ranging from 2013 to 2019) had no reported connections to other alumnae, were not reported as connections by other alumnae, and are considered isolates. Some isolates are alumnae who did not complete the survey; while they may have been in contact with other alumnae (but did not report it), no other alumnae who did complete the survey reported a connection to them.

Individual country analysis reveals networks that range in density from moderate to very weak, with some countries strongly held together by small groups of individuals who are all connected to each other. See Annex F for additional information on the networks.

*Finding 17: Only a small percentage of alumnae linkages are formal, and these have low or moderate value to the alumnae.*

Alumnae reported hundreds of connections to each other, forming the network represented by the sociogram in Annex F. When survey respondents were asked to characterize those linkages as either colleague (formal) or friend (informal), only 296 of those linkages were described as formal linkages with colleagues – the vast majority of linkages between alumnae in the network were informal, as friends (which is as expected at this stage of their lives, as they transition from school and university settings to workplace settings). In addition, alumnae only rated 19.5% of the formal linkages as being of high value to them. Most of those had two key characteristics – the alumna considered the colleague to also be a friend and communicated with that person weekly.

*Finding 18: Alumnae utilize Facebook group posts and direct messages to stay connected.*

Although WhatsApp groups were established for alumnae in several countries, most indicated they only used the cohort-wide WhatsApp group around a particular event. Instead, ad hoc information-sharing primarily occurs in the TechGirls' Facebook group or directly through Facebook Messenger or WhatsApp direct messages (Tunisian alumnae also included Instagram as a preferred mode of contact). Several respondents in Morocco, Tunisia, Lebanon, and Palestinian Territories, however, noted they are not interested in chatting for the sake of chatting.

Some alumnae emphasized that they ask for other alumnae's emails and shift to email communications when there is something significant to share or for larger collaboration projects.

As one said, “*whenever I contact a TechWomen or TechGirls alumna I ask her to give me her email. That makes it more official. Of course, we are going to chat on WhatsApp. To make it more official, I tend to use email.*”

The Facebook group also provides a way for alumnae to reconnect even if they have otherwise lost touch or when communications are unstable for any reason. One alumna gave the example, “*we are like a kind of family...when the Beirut explosion happened, my first reaction is to go to the group and check up on everyone in Lebanon.*”

*Finding 19: The level of activity of the TechGirls alumnae network varies by country.*

In some countries, alumni reported a wide range of activities undertaken by members of the alumnae network – through TechGirls clubs, TW-TG clubs, U.S. Embassy/ECA alumni activities, or independently. Networks appeared to be most active in Morocco, Tunisia, Jordan, Egypt, and Palestinian Territories, while alumnae cited a lack of activity in Lebanon and Algeria. The social network analysis also shows a less dense network in Egypt and a fragmented network in Lebanon. There is also no formal network for the U.S. TechGirls, and one U.S. alumna recommended that the U.S. TechGirls should be encouraged to work together to do their own projects from home and support the foreign alumnae’s projects as well.

### **EQ 3.1. What type of support are alumnae receiving from the TechGirls alumnae network?**

*Finding 20: The TechGirls alumnae network serves both a social and practical purpose.*

For some alumnae, the TechGirls network represents continued friendship and a significant source of social and psychological support. As an Algerian alumna shared, “*Before the program I used to have only one friend. Now I have many, and I am very happy to be part of this network of amazing friends.*” Alumnae from the Palestinian Territories also found it to be enriching socially, enabling them to create a wider circle of friends and connections within the region and locally.

For others, however, friendship is not the primary purpose of the network. Alumnae cited a variety of support the alumnae network offers, including: information-sharing (such as education, scholarships, other exchange programs, travel, competitions, and project funding opportunities), English language practice, collaboration on small projects, and, in rare cases, mentoring. Given the rapid transitions the alumnae experience upon their return home (completion of high school, entrance into university, entrance into the workforce), the alumnae can serve as sounding boards for each other. A respondent in Tunisia explained mentoring generally occurs between alumnae from earlier cohorts and later cohorts when they work together on activities through TechGirls clubs, or TW-TG clubs, or other STEM-related clubs.

*Finding 21: Specific projects, competitions, and other structured activities create the most productive environment for networking among the alumnae.*

As noted above, many of the alumnae are not interested in idle socialization, but rather prefer to focus efforts on expanding their educational and professional opportunities. For example, in Egypt, alumnae relied on their network to collaborate on projects and in competitions, to seek guidance on scholarships for further studies abroad, and for mentorship. The network has been an important source of support for some in that way. One Moroccan respondent shared, “*personally, I worked with some girls on a project, and we keep supporting each other. It is a*



*mutual support. These projects are either related to our studies or personal projects.”* In Jordan, some alumnae continued to work together on projects in university, working together to further their studies. Additionally, in some countries, there are specific STEM-related clubs and organizations alumnae join, allowing them to remain engaged with other TechGirls alumnae and non-TechGirls peers alike. These include Technovation in Algeria and the Palestinian Territories, and the First Skills Club in Tunisia.

While in many cases the alumnae take it upon themselves to seek out or organize their own activities and events, gatherings and conferences hosted by the U.S. Embassies are also important avenues for networking. Alumnae in Egypt reported that participating in broader ECA alumni activities was more beneficial than the narrower TechGirls and TechWomen alumnae networks.

### **EQ 3.2. To what extent are TechWomen alumnae serving as mentors to TechGirls alumnae following their return home?**

*Finding 22: TechGirls alumnae have experienced varying levels of success in maintaining contact with TechWomen, but widely regard them as mentors and role models.*

TechWomen, a parallel program for professional women in STEM fields, draws its participants from all countries in which TechGirls operates and several more. These women are potential role models, mentors, employers, and collaborators for TechGirls alumnae. Collaboration between TechGirls and TechWomen was ad hoc until 2017. Interviewees and alumnae provided a handful of examples of collaboration between TechGirls and TechWomen prior to 2017, when TechWomen began to escort the TechGirls on their travel to and from the U.S. TechWomen had served on selection panels, or in a few cases, in re-entry orientations upon their return home, but there were few structured opportunities for any ongoing collaboration prior to those contacts occurring through the program. In Morocco, TechWomen alumnae established a Girls in STEM club, which served a similar purpose to the TW-TG club.

Efforts have been made over the past couple years to better connect the alumnae of the two programs through the creation of TechWomen-TechGirls Clubs (MENA clubs in 2019), engaging TechWomen alumnae in TechGirls interview/selection committees, and inviting TechWomen alumnae to serve as flight chaperones. Some TechGirls alumnae reported extensive contact with TechWomen through these or other channels, while others indicated the only TechWomen they had met were their travel chaperones. While a little over half (56.8%) of respondents reported contact with TechWomen alumnae following their participation in the program, the TechGirls alumnae’s experiences varied in the strength of this contact.

However, regardless of the amount of contact, TechWomen are perceived as role models and mentors on both the professional and personal levels. Of the respondents who indicated they had a mentor or mentor(s) in the STEM field, 60% of them mentioned a TechWomen alumnae as their mentor, while only 40% of them had a non-TechWomen mentor. Some alumnae,

particularly in Tunisia, Palestinian Territories, and Jordan, said they had one-on-one mentoring relationships with TechWomen based on their educational and professional interests. These relationships developed through TechWomen chaperoning, TW-TG Club participation, and collaboration on joint projects and initiatives. Alumnae in the Palestinian Territories stressed this is a great outcome of this program. Equally, however, other alumnae in Jordan and Egypt reported it was very difficult to get in touch with the TechWomen alumnae, despite U.S. Embassies organizing events to foster these types of connections. Across countries, the major obstacles TechGirls reported in establishing and maintaining relationships with TechWomen were identifying TechWomen alumnae with similar interests and obtaining their contact information.

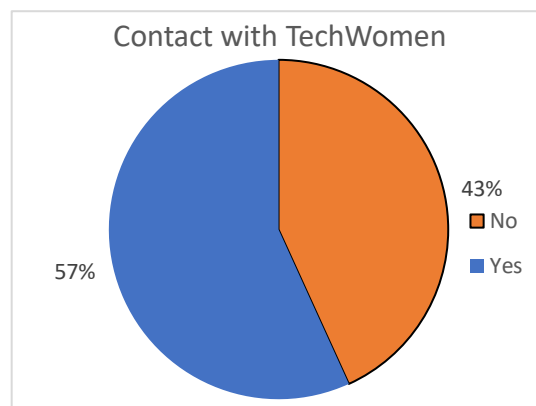


Figure 11. Alumnae Reported Contact with TW

*Finding 23: Structured collaboration, projects, and skill-building activities are key elements in successful mentor-mentee relationships.*

Similar to finding 18, structure and clear goals are critical in fostering effective mentorship across TechWomen and TechGirls' cohorts. Key components that facilitate networking have included collaboration on common projects and activities, as well as concrete, structured skill building activities that engaged both mentor and mentee.

The TW-TG clubs are especially well-positioned to foster these types of sustainable interactions and relationships. For example, three TechGirls alumnae organized a conference similar to TedTalks, to which they invited well-known women from the tech field, including TechWomen alumnae. Several U.S. Embassies and Legacy International have also worked to connect TechGirls and TechWomen alumnae, generally through events or competitions, and respondents emphasized the importance of encouraging participation in these events. However, they also highlighted that in-person events should be more frequent and not held exclusively in the capital. In more limited circumstances, TechWomen have invited TechGirls alumnae to job shadow or apply for internships/jobs in their organizations.

*Finding 24: There is moderate participation in TW-TG Club activities.*

As a joint initiative between TechGirls' implementing partner Legacy International and TechWomen's implementing partner, the International Institute for Education (IIE), TechWomen-TechGirls clubs were established in 2018 and 2019 throughout the MENA region. The functions and activities of these clubs vary by country, as initiatives are spearheaded by the members themselves, with guidance from a small club committee of TechWomen alumnae.

A little under half (47.5%) of respondents have participated in a TW-TG club activity, primarily virtual events. Most cohort years had 47%-56% participation, with only 2012 (25%) and 2015 (37.5%) falling below the average. Respondents cited difficulties with travel, busy schedules, and lack of knowledge about the clubs as the main obstacles for further participation. Club activities have also been stymied by COVID-19-related restrictions on travel and gatherings, although some clubs have experienced success with virtual meetings and events. Other planned activities were canceled or postponed.

While many clubs have a committee structure, implementing partner staff suggested more standardization and structure is needed to increase engagement. This was also echoed by alumnae respondents in Algeria and Tunisia, who noted, *“having an assigned TechGirl [and] TechWomen [alumna] responsible for networking and keeping the network connected... would really make it organized.”*

In focus groups across countries, the alumnae who said they had participated in TW-TG club activities reported they were more strongly connected to the network than their peers who did not, regardless of the year of their program. This was particularly strong in Tunisia, where respondents who were active in clubs reported collaboration and mentorship with other TechGirls and TechWomen.

As TechGirls alumnae face several life transitions such as moving on to university and full-time work, the extent to which they are driving the club activities is not clear. Those who travel abroad for university or work seem to have less involvement than those who attend university in their home countries, although many alumnae, regardless of their current location, did participate in the virtual MENA regional summit. (The summit was a virtual event that TechGirls hosted to celebrate the kick-off of the TW-TG clubs.)

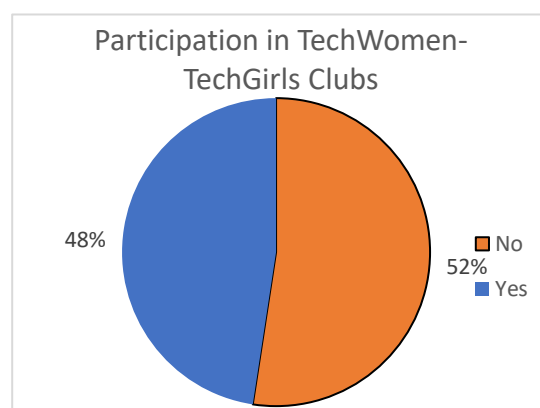


Figure 12. Alumnae Reported Participation in Clubs

#### EQ 4. What challenges have TechGirls alumnae experienced in sustaining these networks?

*Finding 25: Short interactions may not allow for sufficient time to establish lasting relationships.*

One of the more significant impacts of the TechGirls program is the participants' exposure to people from a variety of diverse backgrounds, including Americans. However, several alumnae cited the short duration of their interactions, particularly with host families and job shadow hosts, which limited the impact of those components of the program. As one respondent said, *“My interaction [with Americans] was limited because we had so little time interacting outside the campus and the intensive program.”* Host families' experiences aligned with this sentiment, and with one exception, they noted that their communication is limited to following each other on social media and exchanging short greetings at holidays and special occasions.

The short duration of the interactions prevented most participants from establishing enduring ties. While many do have ongoing interactions via social media, these interactions are structured in specific ways that influences what might be shared. Notably, these interactions are generally superficial and do not typically include extensive discussions about goals and aspirations for the future. The continuity of the relationship is also dependent on the individuals' typical engagement with social media. Therefore, job shadow hosts, who are less likely to provide contact information on social media (LinkedIn being a potential exception), and host families, who may not utilize social media accounts, have fewer options for maintaining the relationships.

*Finding 26: The geographical dispersion of alumnae makes it difficult to attend in-person events and activities.*

Recruitment efforts for TechGirls reach beyond the capital city to suburban and rural areas, and

as a result, program participants and alumnae are located in various places around the country. In some cases, alumnae also seek other educational or professional opportunities abroad, and so are no longer located in their home country. While this geographical dispersion of program alumnae is beneficial, it makes it difficult to convene for in-person events, such as those held by the U.S. Embassy. However, some alumnae have been able to meet more frequently and with greater participation by organizing virtual and online meetings.

*Finding 27: Contact information is outdated or unavailable, and alumnae are not sure how to get in touch with others.*

Alumnae reported there is no centralized system or procedure for updating and sharing contact information among TechGirls and TechWomen alumnae within or across countries. (The contact database maintained by Legacy does not include TechWomen.) Alumnae reported occasional requests from the U.S. Embassy or Legacy International to update their contact information, however these efforts appear to have not been coordinated, as Embassies' alumni lists encompass a large number of programs. Some alumnae reported they are aware they are missing alumnae communications (i.e., emails, newsletters, invitations) but do not know how to correct this problem. This appears to be true primarily among earlier alumnae whose primary staff contacts at Legacy may no longer be with the organization. There is confusion surrounding the entities responsible for outreach and maintaining alumnae contact information, as well as the platforms utilized for networking and communication. TechGirls alumnae are especially unsure of how to identify and contact TechWomen outside of ad hoc introductions or finding them on social media.

*Finding 28: There are competing demands of school and/or work, and alumnae are often busy with other priorities.*

Given the target demographic of the TechGirls program, the alumnae are in a highly transitive period of their lives. Time constraints and competing priorities, such as secondary school and university entrance exams, were often cited as reasons alumnae were not able to remain fully engaged in these networks. Once alumnae begin university or work, there are additional pulls on their time. They may also become further removed from the TechGirls networks, both physically and emotionally. In many cases, the alumnae return home and engage in ECA alumni activities (including TW-TG club activities), but then their participation decreases as they go into university either at home or abroad.

Another challenge for the TW-TG clubs is the implementing partners have somewhat different visions of how the clubs should operate, which is linked to the needs and constraints of their alumnae. TechGirls alumnae (and the TechGirls implementing partner) would like to see more structured linkages starting from when they return from the U.S. (for example, assigned TechWomen mentors). The TechWomen, however, are very busy, and many do not have the time to engage in structured relationships that are external to their own work. They, and the TechWomen implementing partner, prefer a more organic approach in which the relationships develop through participation in activities and initiatives on the part of the TechGirls alumnae.

#### **EQ 4.1. How have environmental and structural factors such as conflict, non-permissive environments, government, and the country's tech sector shaped**

## TechGirls alumnae network(s)?

*Finding 29: Participants feel there is a lack of support and resources for follow-on projects in their communities.*

Alumnae have faced some substantial challenges in implementing their follow-on projects. They have reported feeling there has been a lack of resources and/or support, and they have been left on their own to figure out how to carry out their follow-on projects. Alumnae specifically reported experiencing logistical challenges, such as lengthy permit processes in Egypt to conduct workshops in schools. Several alumnae, particularly those from rural areas, reported having to confront societal and cultural barriers such as family members not wanting the alumna to spend time on the project amid studying for exams or local community members not supporting the project. As one alumna explained, “*The follow-on project was demotivating, the reality and adversity of living in Lebanon has just hit dramatically.*”

*Finding 30: Societal and cultural barriers persist for women entering STEM professions.*

According to experts, while there is a generally positive trend towards gender parity in STEM education, fewer women go on to work in STEM professions. STEM fields continue to be male-dominated, and women may feel intimidated or even harassed in these environments. Employers may not take women candidates seriously or may hold them to a higher standard than their male counterparts. The idea of gendered professions persists, and girls and women may be encouraged to be science or math teachers, rather than technicians or engineers, for example. There is also a gendered family dynamic, where women may be required to obtain permission from their fathers or husbands to work in roles that require travel or overnight shifts. Additionally, women may face pressure to get married and dedicate themselves to raising a family shortly after completing their education, rather than pursuing a professional career. However, some respondents indicated these barriers are mainly psychological.

*Finding 31: In some cases, there is a misalignment of the educational systems and labor markets.*

Although it varies by country, there were several reports across the MENA region that the realities of the labor markets for tech jobs are not aligned with the educational systems, particularly in Algeria, Egypt, Palestinian Territories, and Tunisia. Universities often emphasize theoretical learning, while tech employers want candidates with practical and hands-on training. The education systems do not integrate technology well, and more practical opportunities, such as internships, are not well established nor widely available.

## CONCLUSIONS

### Evaluation Question 1

Overall, participants are happy with the program, and it is largely achieving program goals. Participants have reported gains in STEM skills as well as soft skills, and, importantly, they have continued to apply the skills learned once they return home. The program has inspired and empowered young women to pursue STEM and it has helped to increase their interest in, and awareness of, STEM educational and professional opportunities. It also has helped to provide clarity on the application of STEM to a wide variety of fields as well as what studying or working in STEM look like in practice. The majority of alumnae report studying STEM in university and/or pursuing a career in STEM fields.



When considering the structure of the program and the specific program elements, it appears the tech camp and job shadow components are the most impactful for foreign participants' educational and professional trajectories. Conversely, interaction with Americans, the community service activity, and follow-on project components were deemed to be least impactful.

The program has a more limited impact on the U.S. TechGirls, who make up a small percentage of participants – approximately 10% of total participants. The technical and leadership aspects of the program were highly beneficial for them, similar to the foreign TechGirls. However, they were very aware that they were not full participants as they were not participants in the job shadow component and follow-on projects, which they thought was regrettable.

## **Evaluation Question 2**

The influence of Americans on participants varied from quite impactful to relatively unimpactful, depending on the individual participant. Of the various opportunities for interactions with Americans, the alumnae generally enjoyed the host family stay and many wished for more time with the host families; however, the ultimate impact of this experience also varied by participant. The addition of the U.S. TechGirls component was expected to deepen interaction between foreign TechGirls and American peers, but that does not seem to have occurred in a meaningful way, at least within the current program structure.

When it comes to influence on educational and professional trajectories, the exposure the program provides to the U.S. education model, which emphasizes a practical, hands-on approach to learning in STEM, was particularly influential for participants, especially those who lack access to these types of facilities in their home countries.

In terms of networks, many alumnae are still in contact with their host families, but only some are still in contact with their job shadow hosts, despite rating the job shadow day as one of the most impactful program components. Most American TechGirls are integrated into the foreign alumnae network. Communication mainly takes place via social media, and this limits the depth of the interactions. Most interactions consist of superficial greetings and small updates. Barriers to establishing and maintaining enduring relationships include the relatively brief duration the participants spend with the American contacts, lack of interest in maintaining the relationship, or lack of contact information (or knowledge of how to obtain updated contact information through the program) or means of staying in touch.

## **Evaluation Question 3**

TechGirls are in touch with each other, with the network clustering by cohort year across countries. All countries are well represented across the network, although individual country networks vary in density. Social media is mainly utilized for communication, and structured activities, events, and projects provide the best opportunities for facilitating continued engagement and networking.

The TechWomen are widely regarded as mentors and role models, however they are not yet well integrated into the TechGirls network, with a few exceptions. While the TW-TG clubs may provide a key venue for facilitating engagement and networking, the lack of structured activities (as a result of COVID-19 or otherwise), defined roles, and availability of contact information continue to be barriers.

## Evaluation Question 4

Participants cited the intensity of the program as a barrier to establishing enduring relationships with contacts outside of their immediate peer group, such as with the job shadow hosts. They also noted the program schedule left them with too little time to reflect on everything they had learned, possibly diminishing the program's impact. When participants returned to their home country, they also struggled to translate what they learned to realistic follow-on projects, and challenges in implementation of these projects left some alumnae feeling frustrated, disappointed, and unsupported, and to some extent, by their own families and communities as well.

While there are several notable venues for continued network engagement, such as U.S. Embassy events, TW-TG club activities, and events hosted by Legacy International, respondents noted geographical dispersion and competing priorities can make it difficult to remain plugged into the network and maintain these relationships. They have also found it difficult to obtain updated contact information, especially for the TechWomen alumnae, which has stymied potential mentor-mentee relationships.

Finally, alumnae also face some structural challenges including societal and cultural barriers for women entering STEM, and in some cases, a misalignment of education systems and labor markets may make it difficult to pursue a STEM career even if she possesses a related degree.

**Summary of Key Findings by Country** As noted throughout the report, key differences emerged by country. The sections below highlight these by country.

### Algeria

Participants from Algeria typically had somewhat less exposure to STEM than participants from some other countries. Almost all, 94%, had a moderate or greater change in their awareness of STEM opportunities and were more interested in STEM careers after the program. Another differentiator is that their reported changes in skills and knowledge are greater than those from other countries; they reported increases in STEM skills (89%), leadership (94%), networking (78%), and intercultural communication (89%). However, only 94% of alumnae were able to apply the skills they learned, compared to 100% in many other countries.

Experiencing life and academics on a U.S. university campus was impactful for Algerian alumnae, and the program helped participants decide on a university major. Alumnae also reported that interacting with women in STEM during the job shadow day inspired and motivated participants to pursue education and careers in STEM. Respondents specifically cited the program's impact in helping to build their confidence, open doors to new opportunities, and clarify their educational and professional goals. More Algerian alumnae faced difficulty in pursuing those goals than alumnae in other countries, however. Gendered work norms are pervasive, and other challenges, such as needing family permission to travel, persist for women in STEM professions.

All Algerian survey respondents maintained contact with other TechGirls, mostly through social media. The most recent cohorts are very active in the Technovation initiative, with about 80% participation, and the Algerian Youth Leadership Program. Algerian law severely limits the activity of civil society, and there is no organized TW-TG club. Respondents reported limited contact between TechGirls and TechWomen, but despite this and the lack of a national TW-TG club, 38% of survey respondents had participated in a TW-TG club activity, primarily summits

or reunions. Another key limitation to maintaining networks in Algeria is geography and the distances for alumnae living outside Algiers and in rural areas, who find it difficult to participate in alumnae events.

## Egypt

Egypt has a robust and growing tech sector, and many Egyptian participants have greater familiarity with STEM than those from other countries. Despite this advantage, 90% of respondents had a moderate or greater change in their awareness of STEM opportunities as a result of the program. All Egyptian alumnae were more interested in STEM careers post-program, and all were able to apply the skills they learned. However, the greater exposure to STEM prior to the program meant that fewer Egyptian participants gained STEM skills (62%), and fewer reported gains in other skills as well: leadership (50%), public speaking (50%), networking (50%), and intercultural communication (62%). Although they may have had higher skill levels coming into the program, the alumnae reported that the TechGirls program increased their confidence in their STEM skills, which was an important factor in their later activities and educational and professional pursuits.

Egyptian TechGirls are highly involved in their communities and share skills they learned with their peers through workshops, classes, and clubs. Some of their initiatives have been significantly larger in scope than those of other TechGirls, but they have faced some unique challenges. For example, Project ‘Learn to Lead’ targeted youth (ages 12-17) in STEM and non-STEM public schools to teach them technology skills and soft skills, but the time to acquire a permit for the project was eight months. Another alumna founded a Robotics Club through which she trained 25 students in Java programming and selected 4 as instructors who worked with other students in STEM and non-STEM schools in 4 different governorates (using a cascade training model).

Participants enjoyed spending time on a U.S. university campus, and they said it helped increase their awareness of and interest in study abroad opportunities. TechGirls exposed them to new and non-traditional fields and helped them decide on a university major and career. Despite the recent focus of Egyptian secondary education on STEM fields and the establishment of STEM schools, families and communities do not always see the value of STEM opportunities and education for girls. Experts cited few barriers for women *studying* STEM, but greater challenges for women entering STEM professions, particularly in terms of work-life balance.

All Egyptian survey respondents reported that they maintain contact with other TechGirls through social media, virtual meetings, and Embassy events. TechGirls collaborate on projects, competitions, and grants. Alumnae utilize the network for advice on scholarships and study abroad, especially opportunities in the U.S. In Egypt, the U.S. Embassy has organized ‘Alumnae Unite,’ which alumnae said was better than TechGirls or TechWomen networks. Only 27% of respondents have participated in a TW-TG club activity (reunion/summit meet-up or networking event), but several focus group participants said they maintained contact with the TechWomen chaperone who escorted them to the United States, and those chaperones person had occasionally connected them with other TechWomen.

While alumnae said interactions with American women in STEM were impactful, fewer Egyptian alumnae remain in contact with the Americans they met (host families, job shadow hosts, and program staff) than in any other country. They cited the same challenges as alumnae



in other countries, and there is no clear reason why contact might be more difficult. Given the presence of the American University in Cairo, a range of long-standing U.S.-Egyptian university partnerships and recruitment strategies, and the robust tech sector, however, Egyptian alumnae may find more resources in their local communities than others.

## Jordan

Similar to Egypt, Jordan has an active tech sector and has invested significantly in STEM education at the secondary level. Therefore, only 74% of Jordanian alumnae reported a moderate or greater change in their awareness of STEM opportunities, and 93% reported the same or more interest in STEM careers as a result of the program. Despite that, only 93% of participants from Jordan were able to apply the skills they learned, which may reflect the smaller numbers of alumnae reporting skills gains: 74% in STEM, 81% in leadership, 74% in networking, 52% in public speaking, and 85% in intercultural communication skills.

Alumnae said that the program helped them particularly in building their personal skills and capacity – their independence, self-confidence, and personal networks that helped and supported them in their undergraduate studies and work later. Both TechGirls alumnae and local experts indicated there were few barriers to them in pursuing either education or careers in STEM fields.

Most Jordanian alumnae, 93%, maintain contact with other TechGirls, mostly via social media (Facebook Messenger and WhatsApp). Jordan has one of the higher rates of contact between TechWomen and TechGirls, with 52% of TechGirls maintaining contact with TechWomen and 48% of alumnae participating in a TW-TG club activity. Despite that contact, focus group respondents reported that there is no strong network among TechGirls alumnae themselves or between TechGirls alumnae and TechWomen in Jordan, noting the informality of the existing structures.

## Lebanon

All participants from Lebanon were able to apply the skills they learned. In total, 89% of respondents had a moderate or greater change in their awareness of STEM opportunities as a result of the program, and 84% of respondents were more interested in STEM careers post-program. In addition to those who reported increased skills in STEM (79%), most alumnae also reported gains in soft skills such as leadership (89%), public speaking (74%), networking (68%), and intercultural communication (89%) as a result of the program.

Several alumnae noted that the TechGirls program helped them solidify or decide on their university major. The program made them more determined and helped them envision their futures. Women and girls continue to face significant challenges in pursuing education and careers in STEM fields, however, and often feel overlooked. Despite these challenges, exposure to American volunteerism and community service inspired and motivated participants to contribute to their communities and create positive change.

The Lebanese alumnae reported that the TechGirls program helped them view themselves in a different light – they were used to being ignored due to their age/gender but felt “heard” during the program. Although the girls are inspired and motivated by the program, in some cases a lack of community and family support made it difficult for them to sustain their efforts once they returned home.

More Lebanese alumnae, 95%, maintain contact with other TechGirls than those in other countries. They maintain both local and international contacts and collaborate on projects, such as community service activities. But they also critiqued the network, saying informal networks and ad-hoc communications through social media make it difficult to sustain a robust network with meaningful connections. In addition, 58% of respondents had participated in at least one TW-TG club activity, and they would like to have more frequent and organized engagement activities to strengthen TG-TW networks.

## Morocco

Moroccan alumnae reported that the program increased their awareness of STEM opportunities (87%) and that their interest in STEM remained the same or increased (87%) as a result of the program. In addition, most alumnae reported that their skills improved in STEM (93%), leadership (93%), public speaking (73%), networking (87%), and intercultural communication (87%), and 93% of participants were able to apply the skills they learned.

Moroccan alumnae have varied experiences with pursuing education and careers in STEM. In conservative communities, families are slower to encourage their daughters to study STEM-related fields. It may also limit where young women study, as some families will not allow their daughters to live or travel far from home. In addition, STEM education remains highly theoretical at the secondary level and in some tertiary settings as well, where financial constraints impede the acquisition and use of equipment in STEM education. Some curricula are also out of date, increasing the misalignment with employers' skill needs. All of these constraints have some influence on alumnae trajectories.

Most Moroccan alumnae, 87%, maintain contact with other TechGirls via social media. Morocco has the highest rate of contact between TechGirls and TechWomen alumnae, with 67% of TechGirls alumnae reporting contact with TechWomen and participation in a TW-TG club activity. Several alumnae cited a lack of structure and organizational support for the club to run activities that would foster ongoing connections between TechWomen and TechGirls. Some respondents noted that planning for activities was halted, however, as restrictions on gathering were put in place in response to COVID-19.

## Palestinian Territories

Although the tech sector in the Palestinian Territories is expanding, it is currently more limited in scope than in some other countries in the region. As a result, 95% of respondents had a moderate or greater change in their awareness of STEM opportunities as a result of the program, but only 70% of respondents were more interested in STEM careers post-program. This may be due to the current limitations of the tech sector in Palestinian Territories. A large majority, 84% of respondents, reported increased in STEM skills, as they did in soft skills also: leadership (96%), public speaking (88%), networking (79%), and intercultural communication (79%). All survey respondents said they were able to apply the skills they learned. Alumnae also cited gains in self-confidence, independence, and English language skills.

The TechGirls program exposed girls to a variety of STEM-related academic and career choices in the U.S. and learned how to build skills for these career fields. In addition, learning about Americans' educational and professional trajectories help participants feel more confident in pursuing STEM. It is currently more acceptable for young women to study math and science than

other STEM fields, and they are typically encouraged to become teachers rather than applying their skills in business and industry. The alumnae have sought to get involved in local tech communities when they returned home with mixed results. The work culture in information technology and engineering fields may be challenging for women, and it often requires long hours and travel abroad. A key gap in the sector is a dearth of women who are positioned to be mentors in a range of fields.

All Palestinian survey respondents reported they maintain contact with other TechGirls through social media, but some alumnae continue to meet with each other on a regular basis – a group of alumnae take it upon themselves to organize and arrange meetings. Alumnae are also involved in promoting the program for future cohorts – they socialize the program among their peers and advise on application requirements. Participants from Gaza experience unique challenges, as they require a long period of preparation to arrange travel permits to the West Bank and find it difficult to travel and participate in in-person activities after their return home.

In the Palestinian Territories, connections between TechWomen and TechGirls are more robust than many other countries, largely owing to the efforts of a few TechWomen alumnae. TechWomen alumnae serve as mentors to the TechGirls, and alumnae from both programs worked together to conduct a seminar about the importance of technology in their lives. In addition, 38% of survey respondents had participated a TW-TG club activity.

## Tunisia

All participants from Tunisia were able to apply the skills they learned, and 85% of respondents reported a moderate or greater change in their awareness of STEM opportunities as a result of the program. Alumnae also noted the impact of the program on their intercultural communication skills, and most respondents reported gains in soft skills such as leadership (81%), intercultural communication (81%) and networking (77%) as a result of the program.

Alumnae said the program helped them decide on a major by exposing them to a variety of STEM fields and their practical applications, and 94% of respondents who have attended university reported majoring in a STEM field such as computer science, engineering, mathematics, or medicine. Living and attending classes on a U.S. university campus was impactful and made them want to return to the U.S. to study or participate in other study abroad opportunities, particularly as they felt the Tunisian education system does not adequately prepare students for STEM careers. Local experts also reported that gender norms are a barrier to equal opportunities in STEM jobs. Industry, engineering, oil, research and development are dominated by men, whereas data analytics, information technology development, medicine, and biotechnology are considered appropriate fields for women.

Most Tunisian alumnae, 88%, maintain contact with other TechGirls, mostly via social media (Facebook Messenger, WhatsApp, and Instagram), but only 29% of alumnae had participated a TW-TG club activity.

## RECOMMENDATIONS

*Recommendation 1: ECA should consider conducting a pre-program survey of participants about their interests and abilities and, to the extent feasible, tailor program content and activities accordingly.*

While TechGirls is largely achieving program goals, a short pre-program survey could increase program impact by tailoring content more closely to participant interests and abilities. Although most participants reported gains in STEM skills, some respondents indicated the course offerings were either too basic or too advanced, or otherwise irrelevant to their STEM-related educational and career goals. ECA should consider surveying participants to learn more about their STEM interests and abilities and, to the extent feasible, tailor the program and course offerings accordingly, perhaps by building on Virginia Tech's efforts to adapt the program and offer a wider range of content for various skills levels and/or interests. The survey could also be used to help TechGirls more closely match participants' career aspirations and goals with potential job shadow host companies, increasing the likelihood alumnae would be motivated to stay in touch with their job shadow hosts. In pilot interviews with job shadow hosts, a few also recommended obtaining participant profiles and interests ahead of time to help them tailor their content more closely. Finally, the pre-program survey could also be used to match participants with host families according to personality traits and interests.

*Recommendation 2: ECA should consider increasing the duration of the program to allow for additional time for components of particular interest and impact (particularly the job shadow and host family stay) as well as additional time for reflection.*

Given the intensity of the program schedule, TechGirls should consider increasing the duration of the program to increase its impact. By allowing additional time for the job shadow day and host family stay, it is more likely participants will form meaningful relationships and these networks will endure after the girls return home.<sup>7</sup> It will also allow for some downtime for reflection and internalization of the lessons learned and impacts of the program. Many respondents suggested lengthening the program by one additional week.

*Recommendation 3: ECA should consider expanding the practical application elements of the tech camp.*

As the practical elements of the tech camp were found to be highly impactful for participants' educational and professional trajectories, TechGirls should consider expanding the practical application components such as labs, research, and hands-on training. Given many girls lack equivalent hands-on educational opportunities in their home countries, TechGirls is a unique venue to provide these high-impact experiences. Some participants suggested a day for a hack-a-thon. The TW-TG clubs offer an opportunity to build on these activities and to begin to fill the gap where resources in home countries are limited.

*Recommendation 4: ECA should consider expanding the program's career development components.*

As the job shadow component is highly impactful, TechGirls should consider expanding the career development components of the program. In addition to considering lengthening the

---

<sup>7</sup> These components have been lengthened for the 2022 program.

duration of the job shadow host experience, participants also recommended additional visits to other companies, a career fair or career day, and a resume workshop.<sup>8</sup> These additions would help participants learn more about what it is like to work in STEM fields and provide further support for those interested in pursuing STEM careers.

*Recommendation 5: ECA should consider increasing engagement with Americans.*

As the influence of Americans was found to be inconclusive, TechGirls should consider putting more emphasis on interaction with Americans during the program.<sup>9</sup> This could include expanding the program components that involve the U.S. participants, assigning roommate clusters to include an American, increasing the duration of the host family stay, and/or creating opportunities for interactions with Virginia Tech students majoring in STEM fields. Other areas to increase engagement with Americans include ensuring the community service activity includes direct interactions with Americans and/or exposing participants to American culture and values through cultural activities or short excursions. TechGirls might also consider a variety of methods of keeping host families and job shadow hosts engaged, which would also strengthen the brand identity of TechGirls with U.S. stakeholders. Host families might be offered an option of joining a newsletter or Facebook group that links them to what TechGirls alumnae are doing. Job shadow hosts could be encouraged to support participants' follow-on projects and offer support on some TW-TG club activities as well.

*Recommendation 6: ECA should consider increasing support for follow-on projects to help facilitate successful implementation.*

As the follow-on project was found to be the least impactful component, with several participants struggling to translate what they had learned on-program to a realistic project in their home countries, TechGirls should consider offering additional support for follow-on projects, and this topic should be addressed more thoroughly in the post-program debrief. Support could include the mini-grants that have been offered by the program in recent years, Post-designated alumni activity funds where they are available, (for foreign participants) ECA's Alumni Engagement Innovation Fund, or (for U.S. participants) ECA's Citizen Diplomacy Action Fund. Non-financial support could be broadened by assigning a voluntary TechGirls alumna from an earlier cohort, a TechWomen alumna, or a job shadow host as a mentor to help guide the project and/or providing participants with a list of past successful projects from their home country, including information on any past project hosts or sponsors where applicable. Especially in countries where lengthy bureaucratic processes (such as Egypt) or challenging socio-political circumstances (such as Palestinian Territories and Lebanon) are prevalent, providing additional support and guidance to the alumnae as they complete their follow-on projects will help ensure greater success and multiplier effects of the program.

*Recommendation 7: ECA should consider designating one central, virtual communication platform for all TechGirls and TechWomen alumnae.*

To overcome the obstacle of outdated or unavailable contact information, especially when

---

<sup>8</sup> These components have been incorporated into the 2022 program.

<sup>9</sup> Based on the requirements of the new award, Americans will participate in all elements of the exchange starting in 2022. There will also be 25 Americans, compared to five in previous years, which will expand the opportunities for American and foreign TechGirls to engage with each other.



attempting to network with TechWomen, ECA should consider designating one communication platform to host both TechGirls and TechWomen alumnae across all cohort countries and years. This platform should be optimized to allow for direct communication, information-sharing, networking, and collaboration. Given the communication patterns already observed among the alumnae, a Facebook or WhatsApp group is a low-cost, accessible option. ECA might also consider opening this platform to job shadow hosts who might be interested in a longer-term mentoring role with the TechGirls alumnae.

*Recommendation 8: ECA should consider multiplying the number of structured, virtual, and in-person activities, projects, and competitions to facilitate networking and collaboration.*

As our findings indicate structured activities, projects, and competitions are catalysts for establishing and maintaining important connections, ECA should consider encouraging these types of events among the TechGirls alumnae and, to the extent feasible, the TW-TG clubs. Specific recommendations from participants include summits, professional development events, volunteer/community service activities, retreats, tech trainings or talks, networking events, hackathons, workshops, and discussion groups.

These activities should include a mix of in-person and virtual events to allow for participation from alumnae based outside of major cities. They should be planned with enough advance notice to allow maximum participation.

Several U.S. Embassy personnel also recommended establishing a specific fund for TechGirls alumnae, and potentially TechWomen alumnae, to help support these types of projects and initiatives and encourage continued collaboration.

*Recommendation 9: ECA should consider further defining roles and responsibilities for the TW-TG clubs.*

To better facilitate more structured activities and events, ECA should consider further defining roles and responsibilities within the TW-TG clubs. Currently, several clubs do have a committee of TechWomen to provide guidance and overall direction for club activities; however, some alumnae remain unsure about club functions and bolstering the club structure could increase engagement. ECA may also consider developing or sharing templates, handbooks, success stories, and lessons learned from different clubs with each other as these clubs mature.

Participants also recommended a formal mentorship program between TechWomen and TechGirls programs be established. While this would certainly strengthen the network between the two groups and likely multiply the impacts of the two programs, given the feasibility challenges in facilitating and maintaining a mentorship program, the team is not formally endorsing this recommendation at this time.

*Recommendation 10: TechGirls should consider including a discussion of how to remain engaged in the program as part of the post-program brief.*

As uncertainty about how to remain connected to each other and the program seemed to be an issue for at least some alumnae, in addition to adding a section on funding for follow-on projects, the post-program brief should include some discussion of how they can remain involved through TW-TG clubs, formal activities, and other opportunities that may be specific to each country.

# ANNEXES

## ANNEX A: STATEMENT OF WORK

### Evaluation of the TechGirls Program

Under Functional Area 3: Diplomacy, Media and Cultural Affairs Programs of the Department's Performance Management and Evaluation Services IDIQ, the Evaluation Division in the Bureau of Educational and Cultural Affairs (ECA) in the U.S. Department of State (DOS), seeks evaluation services for an independent evaluation of ECA's TechGirls Program.

#### 1. BACKGROUND AND CURRENT STATUS OF THE EFFORTS

The TechGirls Program is an international summer exchange program that is based in the Washington D.C. area and is designed to empower and inspire young women from the Middle East, North Africa (MENA), Central Asia Region (CAR), and the United States to pursue higher education and careers in the science, technology, engineering, and math (STEM) fields through hands-on skills development training with American technologists. Since 2012, TechGirls has trained and mentored 239 teenage girls (ages 15-17) from Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, Yemen, and the United States. In 2019, the Program expanded to include 24 young women from Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan). Each year, approximately 62 young women (28 participants from MENA, 24 from CAR, and 10 from the United States) are selected for a four-week experience in the United States where participants learn leadership and technical skills and conduct community service projects.

The centerpiece of the program is a two-week program at Virginia Tech University in Blacksburg, VA that provides participants with an in-depth examination of technology-related topics, such as Java programming and cyber security, and engages participants in 45+ hours of hands-on instruction through interactive labs. The camp is complemented by additional activities such as site visits to technology companies, leadership clinics, community service opportunities, job shadowing, action planning workshops, cultural events, and weekend homestays with American families. As part of program follow-on, the participants implement at least one peer training program or service project within their schools and/or communities.

Through the newly piloted TechWomen-TechGirls Clubs (launched in 2019), foreign TechGirls alumnae have had opportunities to help create, develop, and participate in TechWomen-TechGirls Clubs in their home countries, an initiative aimed at creating mentorships and building stronger networks between TechWomen and TechGirls alumnae. The TechWomen program empowers, connects and supports the next generation of women leaders in science, technology, engineering and mathematics from sub-Saharan Africa, CAR, and MENA by providing them the access and opportunity needed to advance their careers, pursue their dreams, and inspire women and girls in their communities.

#### 2. PURPOSE OF THE EVALUATION

The purpose of this evaluation is to determine how successful TechGirls is in meeting program aims. This evaluation will assess the strength and sustainability of professional and educational networks created by the program, the extent these networks have been leveraged for collaborations to enact change, and the impact of the program on educational trajectories and professions. The evaluation will provide evidence to inform programmatic decision-making to the ECA program team, who will be the primary user of the evaluation results, to inform the design, implementation, and improvement of TechGirls as well as a potential expansion of the program into sub-Saharan Africa. The findings also will provide critical information to the Department of State, the U.S. Congress, and other stakeholders such as tech companies in Washington D.C. and Virginia that have participated in the program.

### 3. EVALUATION QUESTIONS

The evaluation should answer the following overarching questions:

1. To what extent is the TechGirls program structured in a way that would contribute to achieving Program goals?
  - 1.1. How, if at all, has the TechGirls program affected participants' knowledge, attitudes, and practices?
  - 1.2. What has been the impact of the TechGirls program on the educational and professional trajectories of TechGirls alumnae?
2. To what extent has the interaction with Americans influenced the educational and professional trajectory of TechGirls alumnae
  - 2.1. How have TechGirls participants maintained networks with Americans from the program (i.e., job shadow and site visit host companies, host families, American TechGirls)?
3. How are TechWomen and TechGirls alumnae establishing and maintaining networks with other TechGirls alumnae? By country? By region?
  - 3.1. What type of support are alumnae receiving from the TechGirls alumnae network? (financial, exchange of resources, mentorship, etc.)
  - 3.2. To what extent are TechWomen alumnae serving as mentors to TechGirls alumnae following their return home?
4. What challenges have TechGirls alumnae experienced in sustaining these networks?
  - 4.1. How have environmental and structural factors such as conflict, non-permissive environments, government, and the country's tech sector shaped TechGirls alumnae network(s)?

### 4. EVALUATION DESIGN AND DATA COLLECTION METHODS

This evaluation will seek to answer the four evaluation questions through a mixed methods design. Below are suggested methodologies for data collection that may be appropriate for this evaluation. These suggestions should not be considered a final or complete list. **In developing the final evaluation design, the ECA Evaluation Division will work closely with the Contractor to determine the best methodologies and approaches required to meet the**



## needs of this evaluation.

### Potential Key stakeholders:

- TechGirls alumnae
- TechWomen alumnae
- USG stakeholders (ECA and Embassies)
- U.S. Community Members (Virginia Polytechnic Institute and State University (“Virginia Tech”), Host companies, Host families, Mentors, etc.)
- Implementing partner (Legacy International) staff

### Potential data collection methods:

- Document, records, and literature review
- Surveys (web-based and/or in-person)
- In-depth, key informant semi-structured and structured interviews (remote and in-person)
- Focus groups (remote and in-person)
- Direct observation
- Social Network Analysis (SNA) – see below

Data collection should include **both** domestic and overseas fieldwork. The Contractor should plan to travel in-person for all required fieldwork (see sections 7.7 and 7.9 below for additional details) with the assistance of local Contractor(s)/sub-Contractor(s) for international fieldwork.

## Social Network Analysis

The evaluation design should incorporate a social network analysis to determine the extent to which the program successfully creates and sustains networks of professionals in the STEM field, and examine what factors—including those outlined in the evaluation questions, such as such as conflict, government, non-permissive environments, the level of development of home country tech sectors—contribute to programmatic success and identify areas of improvement toward that end. The evaluation will examine the dynamics of the networks created by the program, the extent to which those networks are sustained, and then, to the extent possible, elucidate the positions and functions of various stakeholders within those networks—such as mentors, other STEM professionals, U.S. embassies, and the alumnae themselves. The evaluation will leverage previously collected data to the extent that it is available, in order to map and analyze the broader network(s) of TechGirls stakeholders, which includes the key stakeholders listed above, from a national, regional, inter-regional, and global perspective.

## 5. EVALUATION TEAM

The Contractor should propose a team with a combination of qualifications as outlined in this Statement of Work (SOW) to provide the best possible product. Requested skills of key and non-key personnel are outlined below. ECA expects Evaluation Team members to have relevant

prior experience in the two regions the Program operates in, familiarity with international exchange programs, and prior evaluation/assessment experience. In addition, at least one proposed team member should have prior experience with Social Network Analysis.

### 5.1 Key Personnel

Key personnel will include:

#### *Evaluation Team Leader (1)*

This person (can be senior- or mid-level) should have served as a team leader in the past (preferably with a USG agency and ideally with cultural exchange programs), has research design expertise with significant experience in collecting and analyzing qualitative and quantitative data, and preferably has experience with Social Network Analysis.

Key personnel will be expected to be available for the entire period of performance. **The ECA Evaluation Division must approve any key personnel change in writing.**

### 5.2 Non-Key Personnel

#### *Evaluation Team (multiple)*

The team may also consist of mid-level evaluation consultant(s). Combined, these individuals should have experience working with international exchange program evaluations, ability to analyze quantitative data, and strong qualitative (with a preference for experience with virtual data collection) analytical capabilities. At least one Evaluation Team member must have SNA expertise if the Evaluation Team Leader does not.

The team may also wish to include a Junior-level Research Assistant(s) to properly support the key personnel. The Research Assistant(s) should consist of an individual(s) with experience working with mixed methods (qualitative and quantitative), large data sets, have strong data visualization know-how, and demonstrate strong analytical skills.

It is expected that, for this evaluation, some level of support staff will be required. It is expected that either a Program Manager or Administrative Support person support this evaluation. This person will assist in copyediting the report, designing and developing infographics, and support in the overall management of the evaluation. Alternatively, if these roles can be filled by the evaluation personnel above for added cost savings, the ECA Bureau would find that acceptable (and preferable).

### 5.3 Use of Locals/Sub-Contractor

The Contractor should include documentation of institutional capacity and staff experience for the potential sub-Contractor(s) and local consultant(s) listed.

The ECA Evaluation Division strongly encourages the use of local consultants or local sub-Contractor(s), as they can offer budgetary advantages during the implementation of the evaluation. In-country partners enable the evaluation team to locate alumnae and can facilitate the interaction between the evaluation team and study participants. To the extent possible, the offeror's proposal should include information pertaining to potential sub-contractor.

#### **5.4 ECA Evaluation Division Staff Travel**

ECA Evaluation staff members may travel with the team to assist with the evaluation and facilitate interactions with representatives of the USG, implementing organizations, and other key personnel. The cost of this individual will be incurred by the ECA Bureau.

### **6. PERIOD OF PERFORMANCE**

The Contractor will be expected to present a delivery timeline in their technical proposal based on the tasks and deliverables outlined in Section 7 below.

Estimated period of performance: Fourteen months with the end of the period of performance June 30, 2021.

The Contractor must be responsive to ECA needs and remain flexible with regard to possible delays or prolonged timing. All work must start within two weeks of contract award.

### **7. WORK REQUIREMENTS – TASKS & DELIVERABLES**

Below is a detailed summary of all tasks and deliverables required under this contract:

	<b>Description</b>
<b>7.1</b>	<b>Regular Communication with the ECA Evaluation Division</b>  Provide status meeting notes that summarize discussions, decisions and result in actionable items. Upon award, the ECA Evaluation Division internal evaluators and the Contractor external evaluators shall communicate on a regular basis (i.e. weekly, bi-weekly, monthly as deemed necessary).
<b>7.2</b>	<b>Kick-off Meeting</b>  The Contractor will meet with ECA to discuss the obligations and responsibilities under the contract before data collection begins. The ECA Evaluation Division will provide guidance in terms of meeting with other offices or outside agencies and grantees.

	Description
7.3	<p><b>Monthly Reports</b></p> <p>Monthly Progress Reports include status of on-going and completed tasks, brief summaries of significant meetings or briefings held during the month reported on, next steps to be undertaken by the contractor, and any pending actions to be taken by the ECA Evaluation Division. Monthly reports should also highlight any delays or expected delays based on the timeline (i.e. when a benchmark or deliverable was <u>not</u> met) as well as remedies or significant challenges which impede the timeline.</p>
7.4	<p><b>Program Document Review</b></p> <p>Upon award, the Contractor will begin preliminary research and review of the TechGirls website/media, program documents, and other materials to gain a better understanding of the program and begin developing the evaluation plan. The ECA Evaluation Division will assist the Contractor with identifying and collecting program documents and materials to be reviewed.</p>
7.5	<p><b>Evaluation Plan</b></p> <p>The Contractor will work in close collaboration with the ECA Evaluation Division to develop a final evaluation plan that includes the following elements:</p> <ol style="list-style-type: none"> <li>1. Data collection methods</li> <li>2. Quality Assurance Plan (which should consist of: participant contact information management plan, cognitive-test plan for data collection instruments, translation plan, survey administration plan, and a quantitative and qualitative analysis plan)</li> <li>3. Planned analysis techniques</li> <li>4. Timeline</li> </ol> <p><b>NOTE:</b> The ECA Evaluation Division must approve any changes in the evaluation plan.</p>
7.6	<p><b>Data Collection Instruments Development and Administration</b></p> <p><b>Development:</b> The evaluation team will draft and submit data collection instruments (e.g. survey questionnaires) to the ECA Evaluation Division for approval. <i>The Contractor will revise all draft data collection instruments (e.g. survey questionnaires) in collaboration with the ECA Evaluation Division. All instruments must be approved by the ECA Evaluation Division prior to finalization and use. In some cases, the Program Office and participating U.S. Embassies may want to review and approve data collection strategies and/or instruments.</i></p>

	Description
	<p><b>NOTE:</b> Due to the U.S. audience as parts of this evaluation’s data collection efforts, some data collection instruments will require OMB approval as part of the Paperwork Reduction Act (PRA). After the instruments have been developed, the ECA Evaluation Division will work to submit through the approval process ( <i>see Section 9.3 &amp; 10 for more details regarding the requirements, and regarding the contractor’s role during this process</i>). It is anticipated that this will be <u>at least</u> a seven (7) month turnaround. The Contractor should remain flexible with the timeline, and the ECA Evaluation Division will keep the Contractor informed on the progress/status as well as when requirements related to this task will be needed.</p> <p><b>Data Map:</b> The Contractor will be required to submit a data map of the data collection questions (items on survey questionnaire) to the evaluation questions listed in Section 3. This will be submitted with the data collection instruments. This “map” can simply be a marker next to the question with the corresponding evaluation question. For example: “Were you satisfied with the networking opportunities provided by the program?” (Evaluation Question XX)</p> <p><b>Scripts:</b> The Contractor will draft and submit the initial introductory contact/cover letters/e-mails/scripts as well as any follow-up or reminder correspondence language related to all data collection instruments, as well as any contact or script language related to the location verification of alumnae to the ECA Evaluation Division for revision and approval.</p> <p><b>Instruments Pre-Test:</b> The Contractor will conduct a pre-test(s) of data collection instrument(s). <i>Any subsequent revisions must be reviewed and approved by the ECA Evaluation Division.</i></p> <p><b>Survey Administration:</b> The Contractor will provide the ECA Evaluation Division with a survey administration plan with details on strategies to regularly monitor survey response rates and methods to increase response rates. Methods to reach survey respondents may include but are not limited to reminder e-mails, postal mailings, domain adjustments, phone calls, etc. Survey response rates of 75% or less than necessary to conduct a robust social network analysis given the number of alumnae targeted, are deemed inadequate and Contractor will be required to demonstrate attempts to maximize response rates.</p> <p>The Contractor will be required to perform diagnostics to ensure adequate survey coverage of key groups is represented in the study population (e.g. gender, program year, program language, and host country). The Contractor will work closely with the ECA Evaluation Division to determine key groups and the ECA Evaluation Division will sign off (approve) on the threshold of representation of the agreed to key groups.</p>

	Description
	<p><b>Reporting:</b> Upon completion of the use of each data collection instrument (survey questionnaire, for example), or completion of the evaluation project, the Contractor must report on the use of survey instruments. The Contractor will be required to report the following information:</p> <ul style="list-style-type: none"> <li>• The actual number surveys distributed and/or the actual number of people interviewed or participating in focus groups (respondents).</li> <li>• The actual number of surveys/interview requests returned/undeliverable/declined, etc.</li> <li>• The percentage of total number of responses that were collected electronically (e.g. via email or web-based instruments).</li> <li>• The total average time (in minutes) it took all respondents to complete the survey or instrument.</li> </ul> <p>It is the expectation that not all key informants outside of the U.S. who may have interacted with the alumnae during the program will speak English well enough to complete a survey or participate in an interview, etc. Therefore, the Contractor should expect to have all approved/finalized overseas data collections instruments translated into relevant and submitted to the ECA Evaluation Division. See Section 9.4 for translation requirement related to any instruments used for overseas stakeholders.</p>
7.7	<p><b>Overseas Data Collection</b></p> <p>See Section 9.4 for translation requirement related to any instruments used for non-U.S. stakeholders.</p> <p>International fieldwork will include travel to 3 countries. Countries to be considered for international fieldwork include (**For consistency across budget proposal submissions, please budget for Jordan, Morocco, and Egypt**):</p> <ul style="list-style-type: none"> <li>• Jordan</li> <li>• Morocco</li> <li>• Tunisia</li> <li>• Egypt</li> <li>• Algeria</li> <li>• Palestine</li> </ul> <p>Final country selection for data collection will be determined in consultation with the TechGirls program team and the Evaluation Division after the Contractor is onboarded, with consideration to the program team's requirements and data collection feasibility.</p> <p>Travel should take place in the MENA region and trips can be to one or more</p>

	Description
	<p>countries depending on logistics and feasibility of travel between countries.</p> <p><b>Remote data collection:</b> The Contractor should also plan to use remote data collection methods as a means of engaging with alumnae from countries where the Contractor is unable to travel in-person.</p> <p>All countries are subject to change, contingent on security conditions, other events, or State Department interests that require selection of a different country. The ECA Evaluation Division can amend the selection of fieldwork countries, at any point during the evaluation, and the Offeror should remain flexible at all times.</p> <p>Once evaluation countries are finalized, the ECA Evaluation Division will work with Embassies in selected countries, to facilitate field work initiation. <b>The Contractor will take full responsibility for fieldwork implementation</b> (i.e., preparation for fieldwork and data collection logistics).</p> <p><b>In-country debrief:</b> for each fieldwork country, the Contractor should plan on a one-hour in-person debrief with the U.S. Embassy to outline preliminary findings from the fieldwork.</p> <p><b>Please see Section 11.2 on information to estimate the travel costs for this contract.</b></p>
7.8	<p><b>Interim Report</b></p> <p>The Interim Report should present the preliminary or initial evaluation findings from the Overseas Data Collection. The Interim Report should be submitted within eight (8) weeks after completing international fieldwork.</p> <p>The interim report should be no more than 15 - 20 pages. The summary should include the following:</p> <ul style="list-style-type: none"> <li>• Purpose of the evaluation and questions addressed</li> <li>• Current status of the evaluation</li> <li>• Methodology</li> <li>• International fieldwork preliminary findings</li> </ul>
7.9	<p><b>Domestic Field Work</b></p> <p><b>NOTE:</b> This task requires data collection through domestic travel.</p> <p>Fieldwork in the U.S. should include site visits to the implementing partner Legacy International (Bedford, VA), Virginia Tech (Blacksburg, VA), host companies, and host families in Washington, D.C. and Virginia</p>



	Description
<b>7.10</b>	<b>Evaluation Report Outline</b>  Prior to drafting the Evaluation Report, the Contractor must submit a detailed draft report outline for approval by the ECA Evaluation Division.
<b>7.11</b>	<b>Initial Draft of Final Evaluation Report</b>  As part of the report review process, the Contractor will submit multiple drafts of the Evaluation Report, and adequate time shall be incorporated into the project schedule. Below is an outline of the expected review/approval process: <ol style="list-style-type: none"> <li>1. ECA Evaluation Division review</li> <li>2. Program Office and ECA/P manager review</li> <li>3. ECA senior management (DAS level) final approval</li> </ol> <p>The Contractor should expect each round of revisions and approvals to require no less than a two-week turnaround by ECA, and that the bulk of review/revision time occurring during the ECA Evaluation Division review phase. The Contractor must remain flexible as the time it takes to gain the appropriate approvals can vary.</p>
<b>7.12</b>	<b>Briefing</b>  After approval of the draft version of the Evaluation Report, the Contractor will be expected to present a briefing (most likely format will be 45-60 minutes of presentation; 30-45 minutes of questions) of the report findings to key stakeholders identified by the Evaluation Division. Stakeholders may include members of the Office of Policy and Evaluation, Program Offices in ECA, staff from other offices in the U.S. Department of State, ECA senior leadership, or staff from implementing organizations. <p><b>NOTE:</b> Prior to the briefing, the Contractor will be required to submit the PowerPoint presentation and any associated materials to the Evaluation Division for review and approval. Briefing materials should be a stand-alone presentation (i.e. with appropriate slide notes/script) which can be used by the Evaluation Division after the completion of the Evaluation.</p>

	Description
<b>7.13</b>	<p><b>Evaluation Final Report</b></p> <p>The Final Evaluation Report should include an Executive Summary that includes key findings, and a detailed analysis of the data collected, as well as any conclusions, recommendations, and lessons learned. As per DOS evaluation guidelines, the final report should be between 25-30 pages (not including appendices). Detailed information on analysis, data, or research instruments can be placed in appendices. The Contractor should use non-technical language that is understood by lay audiences. Any academic and/or technical language used must be clearly explained in the report. The report should be organized around evaluation questions. For each major evaluation question, the report should have a separate section presenting findings and conclusions. The ECA Evaluation Division will provide further guidance to the contracting firm.</p> <p>Language in the Final Report should be clear and easily understandable by a lay audience. The Evaluation Report should follow the U.S. Government Printing Office Style Manual (<a href="http://www.gpo.gov">www.gpo.gov</a>).</p> <p>Electronic copies in Microsoft Word and PDF of these documents will be submitted in an e-mail to the ECA Evaluation Division prior to the conclusion of the contract. A single file must include the executive summary and the full report, with any relevant appendices (plus a cover sheet) in a separate file.</p>
<b>7.14</b>	<p><b>Evaluation Summary</b></p> <p>Upon completion of an approved final Evaluation Report the Contractor will be expected to develop an evaluation summary. The evaluation summary should be brief, approximately two to four pages. The summary should include the following:</p> <ul style="list-style-type: none"> <li>• Title of the evaluation</li> <li>• Date the report was submitted</li> <li>• Evaluation purpose and evaluation questions addressed</li> <li>• Methodology</li> <li>• Key Findings</li> <li>• Recommendations/Lessons learned</li> </ul> <p>The Contractor should review the African Women's Entrepreneurship Program and Gilman evaluations on the ECA Evaluation Division website:  <a href="https://eca.state.gov/impact/evaluation-eca/evaluation-initiative/completed-evaluations">https://eca.state.gov/impact/evaluation-eca/evaluation-initiative/completed-evaluations</a></p> <p>Electronic copies in Microsoft Word and PDF of the approved final evaluation summary will be submitted by e-mail to the ECA Evaluation Division prior to the conclusion of the contract.</p>

	Description
7.15	<p><b>Infographic Brochure Report</b></p> <p>After the Final Evaluation Report has been submitted and approved, the Contractor will be expected to meet with the ECA Evaluation Division, and possibly other ECA stakeholders (e.g., the Program Office) to determine which specific data points from the Final Report will be shared with which audiences and for what purpose. These data sets will be included in a brief infographic style report, etc. This report should be no more than ten (10) pages.</p> <p>The data points used in this infographic will be used solely at the discretion of ECA. The infographic report provided by the Contractor should reflect these discussions and should be visually appealing and accessible by a variety of different audiences. This Report should utilize minimal text and conveying the data through infographics.</p> <p>The contractor should review the Gilman example on the ECA Evaluation Division website: <a href="https://eca.state.gov/impact/evaluation-eca/evaluation-initiative/completed-evaluations">https://eca.state.gov/impact/evaluation-eca/evaluation-initiative/completed-evaluations</a>. Additional design guidance will be provided as necessary.</p> <p>Electronic copies of the approved final infographic will be submitted by e-mail to the ECA Evaluation Division prior to the conclusion of the contract in multiple file types (i.e. PDF, Illustrator). The file delivered must consist of a high-quality infographic report in PDF format with high-resolution images that are 300 dpi (dot per inch). Additionally, the Contractor will be expected to deliver two hundred (200) glossy, full color hard copies.</p>



## ANNEX B: METHODOLOGY

This evaluation employed a mixed method approach in data collection and analysis to answer the key evaluation questions. As little baseline data was available, much of the evaluation's rigor came from collecting data from the range of stakeholders and triangulating the results. We utilized creative data collection approaches including social network analysis (SNA)<sup>10</sup> and ripple effect mapping (REM)<sup>11</sup> to obtain multifaceted and robust data.

### Team Composition

The Dexis evaluation team consisted of Team Leader Christine Allison, Evaluation Specialist Amun Nadeem, Research, Project Associate Gretchen Cloutier, Program Manager Adelaide Bryan, and SNA Subject Matter Expert Maryann Durland. Due to travel restrictions necessitated by COVID-19, Dexis also contracted seven local researchers, one in each of the MENA countries this evaluation covers.

### Document Review

The Dexis team reviewed interim and annual reports, biographies of participants, recruitment and promotional materials, and other documents provided by ECA to mine program information and existing data sources. To capture more qualitative aspects of the participants' experiences, the team reviewed alumnae blogs and success stories in addition to administrative reports and data.

### Primary Data Collection Methods by Stakeholder Group

The following sections outline each of the stakeholder groups included in the evaluation, contact strategies, the expected data collection methods, key data to be gathered from each, and potential risks and associated mitigation strategies. See Annex D for further information on protocols and use of data collection instruments.

Table 1: Data Collection Methodology by Evaluation Question

Stakeholder	Instrument	Target	Considerations	Status
<i>EQ 1: To what extent is the TechGirls program structured in a way that would contribute to achieving Program goals?</i>				
Implementing Partners	KIIs	2-3 KIIs with each IP	IPs include Legacy International and Virginia Tech	Conducted 3 KIIs with each IP
	Survey	50% response rate	Sent to 19 Legacy International staff; 21 Virginia Tech staff	40.0% (16 of 40)
TechGirls Alumnae	Survey	60% response rate	Sent to all alumnae over 18; available in English and Arabic	60.6% (140 of 231)
	FGDs	7 FGDs (1 per country)	Convenience sample depending on locations of alumnae; up to 8 participants; virtual	Conducted 7 FGDs (1 per country)
Host Families	Survey	50% response rate	Sent to 58 host families	24.6% (16 of 65)
<i>EQ 2: To what extent has the interaction with Americans influenced the educational and professional trajectory of TechGirls alumnae?</i>				
Implementing Partners	KIIs	2-3 KIIs with each IP	IPs include Legacy International and Virginia Tech	Conducted 3 KIIs with each IP
	Survey	50% response rate	Sent to 19 Legacy International staff; 21 Virginia Tech staff	40.0% (16 of 40)
TechGirls Alumnae	Survey	60% response rate	Sent to all alumnae over 18;	60.6% (140 of 231)

<sup>10</sup> SNA is the process of investigating social structures using networks and graph theory. It characterizes networked structures in terms of nodes (individual actors, people, or things within the network) and the ties, edges, or links (relationships or interactions) that connect them.

<sup>11</sup> REM is a participatory evaluation technique that engages stakeholders to visually map program efforts and results to collect impact data.



Stakeholder	Instrument	Target	Considerations	Status
			available in English and Arabic	
	FGD	7 FGDs (1 per country)	Convenience sample depending on locations of alumnae; up to 8 participants; virtual	Conducted 7 FGDs (1 per country)
Job Shadow Hosts	Survey	50% response rate	Sent to 40 job shadow hosts	29.3% (12 of 41)
Host Families	Survey	50% response rate	Sent to 68 host families	24.6% (16 of 65)
Embassy Personnel	KIIs	1-2 personnel per embassy (7-14 total)	Introductions made by ECA; phone/virtual	Conducted 14 personnel interviewed (1-3 per embassy)
Community Stakeholders	KIIs	2 per country (14 total)	Stakeholders identified via alumnae survey and FGDs	Conducted 14 KIIs (2 per country)
<b>EQ 3: How are TechWomen and TechGirls alumnae establishing and maintaining networks with other TechGirls alumnae? By country? By region?</b>				
Implementing Partners	KIIs	2-3 KIIs with each IP	IPs include Legacy International, and Virginia Tech	Conducted 3 KIIs with each IP
TechGirls Alumnae	Survey	75% response rate	Sent to all alumnae over 18; available in English and Arabic	60.6% (140 of 231)
TechWomen Alumnae	Survey	Determined by Social Impact	In collaboration with Social Impact, relevant questions were inserted into their tools	Complete; data provided by Social Impact
<b>EQ 4: What challenges have TechGirls alumnae experienced in sustaining these networks?</b>				
Implementing Partners	KIIs	2-3 KIIs with each IP	IPs include Legacy International, Virginia Tech	Conducted 3 KIIs with each IP
TechGirls Alumnae	Survey	60% response rate	Sent to all alumnae over 18; available in English and Arabic	60.6% (140 of 231)
Embassy Personnel	KIIs	1-2 personnel per embassy (7-14 total)	m Introductions made by ECA; phone/virtual	14 personnel interviewed (1-3 per embassy)
National STEM Experts	KIIs	3 per country (21 total)	Experts identified by local data collectors	22 experts interviewed (2-3 per country)

## Implementing Partners

Dexis first engaged Legacy International, TechGirls' primary implementing partner, following an introduction facilitated by ECA. In tandem with soliciting key program documents such as participant lists and stakeholder contact information, we scheduled KIIs with three Legacy staff members who work most closely on the TechGirls program. Following interviews with Legacy, we also scheduled KIIs with three Virginia Tech professors who taught courses on Java programming and cybersecurity during the tech camp portion of the program. The Dexis' IP interview guide included 15 questions and took an average of 43 minutes to complete.

In addition to the KIIs, the evaluation team sent surveys to 40 Program Staff, 21 of whom were from Virginia Tech and 19 of whom were former Legacy International staff. All emails appeared to successfully reach the recipients' email inboxes. Of the 40 recipients, 14 completed the survey (all self-administered), two refused, and the response rate was 40%. Among the thirteen respondents that completed the survey in one sitting, the average time to complete the survey was 7.6 minutes.

## Alumnae

TechGirls alumnae were in the best position to provide much of the information needed to answer the evaluation questions. As such, we used two methods to collect data from them: a



survey of all alumnae and FGDs with a convenience sample<sup>12</sup> of alumnae.

Out of 202 total alumnae in the seven MENA countries, the survey was issued to 186 alumnae<sup>13</sup> and we received 123 complete responses (a 60.8% response rate) and 17 partial responses. Two duplicate complete responses were dropped and not included in the analysis. The survey contained 43 questions with an average completion time of 45 minutes. The survey was available in both English and Arabic (see **Error! Reference source not found.**). It was pilot tested through cognitive interviews with seven MENA alumnae and an online survey with one U.S. alumna. Dexis managed the survey on the SmartSurvey platform, which provided robust Arabic language support, customizable invitation and reminder messages, response tracking, and optimal viewing on handheld devices.

The survey for MENA alumnae was open from September 25, 2020, to November 6, 2020. While we initially planned for the survey to remain open for four weeks, it was agreed, in collaboration with ECA, to leave the survey open for an additional two weeks (total of six weeks) to encourage increased participation. Local researchers conducted regular follow up via email and phone with alumnae who had not yet responded to the survey, and alumnae also received automatic reminder messages from the survey platform.

The survey was re-opened for U.S. alumnae from May 17, 2021, to June 21, 2021. Of the 29 U.S. alumnae, 26 were of the age of majority and received the survey link via email while the other three alumnae first received a request for parental consent via email prior to administration of the survey. The Dexis team received 16 completed surveys (15 self-administered and one administered by phone), and one alumna refused to take the survey. The response rate was 58.6%. Among the 15 respondents who started and finished the survey in one sitting, the average time to complete the survey was 20.25 minutes. The overall alumna response rate was 60.6%.

In addition to the data collected through the survey, a sample of MENA alumnae participated in FGDs. In each of the seven MENA countries, our local researcher conducted a virtual FGD with 4-7 participants. The FGD guide consisted of 14 questions, and discussions lasted an average of 91 minutes. A FGD was not conducted with U.S. alumnae.

## Host Families

Host families represented one channel through which TechGirls experience U.S. culture and daily life during the program. Although their contact time was short (one weekend) the host families are a critical stakeholder group and have insights into certain aspects of program administration, changes in mutual understanding, and the extent to which contacts have been maintained after alumnae return home. Dexis collected data from host families through a survey.

The evaluation team received a list of 65 host families, three of whom had no contact information and of whom only 58 had email addresses. Of those 58, 17 email addresses were invalid. Among the 41 host families who received a survey invitation, 12 completed the survey (one by phone and 11 self-administered), and four refused. The response rate was 24.6%. For the eleven respondents

---

<sup>12</sup> A convenience sample is a type of non-probability sampling method where the sample is taken from a group of people easy to contact or to reach, in this case alumnae located within a similar area.

<sup>13</sup> Although there are 202 alumnae in the respondent pool, only 186 surveys were able to be issued. A survey was considered “not issued” if 1) the minor’s parents could not be contacted to obtain parental consent for their participation in the survey or 2) the original email address was invalid, and an alternative contact could not be verified.





that completed the survey in one sitting, the average time to complete the survey was 29.71 minutes.

### **Job Shadow Host Organizations**

The final key stakeholder group was the 31 job shadow companies with a total of 41 staff hosts who provided career orientation to TechGirls participants. Although their contact time was short (one day) they were another critical stakeholder group sought to share their perspectives on the impact of the job shadow component and the extent to which contacts have been maintained after alumnae return home. Dexis collected data from job shadow hosts using a survey.

Of the 41 contacts on the list shared with the evaluation team, three did not have an email on file, and 11 email addresses were out of date. The evaluation team was able to find new email addresses for three individuals and identified 10 others through LinkedIn. The evaluation team sent survey requests to 40 Job Shadow Hosts, of whom 9 completed the survey through the website. Two respondents refused in their responses to the evaluation team on LinkedIn, and one clicked refuse and exited the survey. The response rate was therefore 29.3%. The survey included an option to save and resume later. Of the ten respondents, two opted to save and then came back to complete the survey one day later. For the eight respondents that completed the survey in one sitting, the average time to complete the survey was 8.98 minutes.

### **U.S. Embassy Personnel**

In addition to its oversight role, the U.S. Embassy in each of the seven MENA countries has played a significant role in selecting the TechGirls participants, and often continues supporting them upon return home through embassy-sponsored alumni programming. Embassy personnel, therefore, have a unique contribution to make to understanding the impact of the TechGirls program.

Dexis requested interviews with 18 embassy personnel identified by ECA's program office as the most relevant contacts for TechGirls programming, mostly Cultural Affairs Officers and Locally Engaged Staff (LES). We ultimately conducted virtual interviews via Zoom or Microsoft Teams with the 14 embassy personnel (1-3 per Post) who responded to our interview requests. The interview guide contained 11 questions and interviews took an average of 29 minutes to complete.

### **National STEM Experts**

To ensure we have a solid understanding of the opportunities and constraints within the educational and technology sectors in the TechGirls' home communities, in each country local researchers identified three experts from academia, business, or government who were willing to share their informed perspectives. Local researchers ultimately conducted interviews with 22 STEM experts (3-4 per country). The interview guide contained eight questions, and interviews lasted an average of 44 minutes.

### **Community Stakeholders**

To gain insight on the TechGirls' follow-on projects, we included members of the alumnae's home community in this evaluation. The follow-on projects encompass a wide range of activities, from teaching others the skills they learned, to broader community service events. Through the FGDs and in administering the survey, the local researchers asked the alumnae to identify one person in the community who could speak to the impact of her project. The local



researchers then reached out to these community stakeholders to request an interview, ultimately conducting virtual or phone interviews with a total of 14 community stakeholders (two per country). These community stakeholders were affiliated with the alumnae in a variety of ways, including local entrepreneurs and STEM professionals, educators and teachers, TechWomen alumnae, and family members. In some cases, they were associated with STEM-related organizations and clubs that the girls also joined, such as Technovation in the Palestinian Territories and the First Skills Club in Tunisia. The interview guide contained seven questions and interviews took an average of 42 minutes to complete.

### **TechWomen Alumnae**

The TechGirls and TechWomen programs complement each other, and the TechWomen, in some cases, served as mentors for the TechGirls alumnae once they return home. As such, these women represented another key stakeholder group. Contracted by ECA, Social Impact conducted a concurrent evaluation of the TechWomen program, and to minimize the burden on respondents, Dexis and Social Impact collaborated on data collection and information sharing. Social Impact's survey of TechWomen captured TechWomen who reported mentoring TechGirls and included an open-ended question to list the names of the TechGirls who they have mentored. Conversely, Dexis' survey asked the TechGirls alumnae to identify the TechWomen with whom they have had contact. This information was incorporated into our social network analysis.

### **Data Analysis**

The Dexis team reviewed data as it came in, and once all data from overseas instruments was collected, the team conducted comprehensive quantitative and qualitative analysis as described below. Each independent data analysis stream was triangulated through various means including multi-coder checks and verification as well as team-wide discussions about interpretation of data.

#### **Quantitative Data Analysis**

The data from the TechGirls alumnae survey was analyzed using STATA. Data was first cleaned of duplicate entries, out of range answers, and other invalid responses. The survey itself was set up to reduce out of range answers, but some typos and answer mismatches were found in open-ended responses. First, the team ran descriptive statistics and created new variables for analysis as needed. Once all data was cleaned and organized, the team ran cross tabs and analyzed statistically significant differences by sub-groups (Chi Square) for home country and cohort year. Additionally, the team utilized SNA to examine the TechGirls alumnae network across cohort years and countries. We have analyzed and mapped network data from the TechGirls alumnae and TechWomen alumnae survey using NetDraw.

#### **Qualitative Data Analysis**

In parallel with finalizing the data collection instruments, Dexis developed an initial coding scheme for content analysis. In general, FGDs and KIIs benefited from a dedicated note taker and recordings (where permission was given). A local researcher's topline reports were structured around the themes provided for content analysis and included space for new codes for emergent themes. The topline reports from the local researchers were highly beneficial as they were able to interpret culturally nuanced answers provided by the participants.

For consistency, qualitative data sources were coded in Excel by evaluation question. Each local data collector coded their transcripts, and the Evaluation Team Leader reviewed each of the transcripts as well to ensure codes were used consistently. As a second round of analysis, the



team drew on FGD and KII data to analyze the ripple and spread effects on communities and on stakeholders other than the alumnae. The team examined the various impacts the alumnae cited, categorized them into overarching themes (educational, professional, social, etc.), and generated a graphic showing the flow of those impacts.

## Limitations

Nonresponse and limited stakeholder contact information were the main challenges in data collection. Of the 202 foreign alumnae, 19 (9.4%) had missing or invalid email addresses and at least 53 (26.2%) had missing or invalid phone numbers. While Dexis was able to update a total of eight email addresses and 15 phone numbers for the alumnae cohorts through snowballing efforts, our respondent pool was still limited. Other stakeholder groups also had substantial missing or invalid contact information, including host families (30.7%) and job shadow hosts (35.0%).<sup>14</sup>

Another issue with obtaining responses from certain groups on the domestic data collection side was a lack of any sense of connection to the program. The duration of the host family visit and the job shadow components were so short that some potential respondents said they had no recollection of ever having had a role in the program. Others indicated that they had hosted students in the past but had no idea if it was for TechGirls or another program. The TechGirls brand had no meaning to them.

Similarly, although 63 TechWomen responded to the question about linkages with TechGirls, only 17 provided valid contacts for TechGirls in the MENA region. Based on the answers provided, it seemed about half did not recognize TechGirls as a companion ECA program to TechWomen.

Another key limitation was the inability to travel or gather stakeholders in person due to the COVID-19 pandemic. The team originally structured the alumnae FGDs as interactive REM exercises, with the participants generating graphics showing the downstream impacts of the TechGirls program. The creativity and interaction that goes into generating those maps usually help illuminate additional effects beyond the initial ones that respondents might think of first. In addition, the graphics created are meaningful to the respondents, and they identify with those as reflective of their experience. Given the restrictions on travel and meeting in non-family groups, we had to conduct focus groups virtually instead of in person, which required the team to take a different approach and reconstruct the ripple and spread effects following data collection. Therefore, the information provided in the report is more limited than it likely would have been, and the graphic itself may not be meaningful to the alumnae. Similarly, all KIIs were conducted virtually rather than in-person. In addition, all training for data collectors was held virtually, as were debriefings for U.S. Embassies.

In addition, other shared challenges to both quantitative and qualitative data collection are poor recall (particularly for those who were involved only early in the program) and the risk of respondents offering what they thought were desirable answers rather than their candid appraisals or opinions.

---

<sup>14</sup> Percentages are based on missing or invalid email addresses, since email addresses are the main contact method for survey administration. It is not yet possible to determine which phone numbers are invalid for host families and job shadow hosts, although the number of missing phone numbers is similar to the number of missing email addresses.



## **ANNEX C: QUALITY ASSURANCE & SURVEY**

### **ADMINISTRATION PLAN**

Dexis's quality assurance plan was driven by our International Organization for Standardization (ISO) 9001 certified quality management system and adherence to the National Institute of Standards and Technology (NIST) Special Publication 800-171. All TechGirls data and information was handled in compliance with NIST 800-171.

#### **Participant Contact Information Management Plan**

Dexis has ensured all individuals with access to TechGirls participant and program data always adhere to the highest ethical standards and maintain the privacy and confidentiality of participants. Throughout this evaluation, Dexis controlled all access to participant contact information by storing files in a secure SharePoint site that was accessible by login only and by encrypting and password protecting files sent via email. Contact information was segmented and shared only on an as-needed basis. Consultant agreements with the local researchers included privacy clauses requiring them to safeguard all project data and especially personally identifiable information (PII). As data collectors gathered names and contact information for community stakeholders, they saved them into secure files provided by Dexis.

#### **Translation Plan**

The alumnae survey, alumnae focus group guide, STEM expert interview protocol, and community stakeholder interview protocol were translated into Arabic. The team utilized LinguaVox, an ISO-9001 certified translation firm, to complete the translations of the instruments. The local researchers also reviewed the original English version and Arabic translation of each instrument during our protocol training and conducted pilot testing of the Arabic survey with the foreign alumnae. Any proposed changes to the translation were discussed as a group and then incorporated into the final instruments to ensure everyone used terms consistently and appropriately.

Following overseas data collection, the local researchers provided topline reports in English of all interviews and focus groups and retained the original interview notes and recordings in the local language. Only seven alumnae opted to take the survey in Arabic, and Dexis again utilized LinguaVox to translate the open-ended Arabic responses to English for analysis.

#### **In-Country Data Collection Training and Monitoring**

Dexis selected local researchers with extensive experience conducting interviews, surveys, and focus groups with women and youth participants. All researchers were fluent in the local language(s), had a deep understanding of local context, and had a track record of conducting high quality evaluation and data collection activities on schedule and with integrity. Dexis conducted three two-hour virtual trainings with in-country data collectors and provided training packets to each researcher with key materials.

The first training covered the evaluation scope, the alumnae survey instrument, procedures for protecting participant contact information, and protocols for obtaining participant consent as well as parental consent and minor assent for alumnae under 18 years of age. Following this first training, the researchers then completed a pilot test of the alumnae survey. The second training included a debrief of the survey pilot; discussion of the Arabic translations; and review of the FGD guide, community stakeholder interview protocol, and STEM expert interview protocol.



The third training consisted of reporting requirements for analysis, including drafting topline reports and completing the Findings, Recommendations, Conclusions matrix upon completion of data collection, which is a standard framework Dexis utilizes to aggregate evaluation findings and conduct analysis.

Throughout the data collection period, the local researchers also participated in weekly check-ins with Dexis to ensure they remained on track. Survey responses were spot-checked daily, and topline reports reviewed immediately upon submission so any further requests for information could be made in a timely manner. Additionally, the local researchers utilized a WhatsApp group to share best practices and resolve questions in real-time.

### **Survey Administration Plan**

Surveys were managed by Dexis on the SmartSurvey platform, a survey tool that is specifically recognized for its seamless capacity for Arabic script. Through SmartSurvey, we generated individual links for each respondent in the database and sent reminders to ensure those who completed the survey early did not receive unnecessary messages. Foreign alumnae surveys were open for one month (four weeks), while U.S. stakeholder surveys were open for five weeks. Respondents first receive an email message inviting them to complete the survey (with a link). We set up automatic reminders for those who had not completed the survey at two weeks, one week, four days, and one day prior to the close of the survey. The platform's dashboards allowed us to customize message, see progress towards completion in real time, and easily browse and filter results.

Given the cultural context and tendencies for the young alumnae to have changed or infrequently check their email, the local researchers requested phone numbers to be able to follow up with alumnae and administer the survey over the phone as needed. Phone numbers were also important for soliciting parental consent for minors' participation in the survey. Dexis worked with Legacy International to obtain phone numbers for the alumnae, although approximately a quarter (26%) of phone numbers were missing or invalid. However, most respondents (68%) opted to take the survey over the phone, and the local researchers entered responses in the online survey platform in real-time.



## **ANNEX D: REPORT ON PROTOCOLS & USE OF DATA**

### **COLLECTION INSTRUMENTS PHASE 1 & 2**

The Dexis evaluation team completed both phase one and two of data collection for the evaluation of the TechGirls program. Phase one included data collection with foreign stakeholders including program alumnae in seven countries across the Middle East and North Africa (MENA) region; U.S. Embassy Posts in these seven countries; national science, technology, engineering, and math (STEM) experts; and community stakeholders. It also included the U.S.-based implementing partners. Phase two included the domestic data collection and utilized online and phone surveys with U.S.-based program alumnae, Job Shadow Hosts, Host Families, and implementing partners.

#### **Phase One**

##### **Implementing Partner interviews**

Legacy International and Virginia Tech are currently the two organizations partnering on the TechGirls program. The Dexis evaluation team conducted interviews with Legacy International on July 30 and 31, 2020 and with Virginia Tech between October 30 and November 13, 2020, based on the availability and the convenience of the respondents. In total 6 individuals (3 each from Legacy International and Virginia Tech) participated in interviews. All interviews were conducted via a web-based communication platform, such as Zoom. Interviews lasted approximately 43 minutes on average, with the shortest being 22 minutes and the longest being 79 minutes. Zero interview requests were declined or undeliverable.

##### **Post Interviews**

At each of the seven U.S. Embassies in the MENA region included in the evaluation (Algeria, Egypt, Jordan, Lebanon, Morocco, Palestinian Territories, and Tunisia), the Dexis evaluation team contacted program and alumni coordinators identified by the ECA program team to request an interview. A total of 14 personnel (1-3 personnel per Post, with an average of two per Post) participated in interviews between October 9 and November 25, 2020. All interviews were conducted via a web-based communication platform, such as Zoom. Interviews lasted approximately 29 minutes on average, with the shortest being 19 minutes and the longest being 54 minutes. Zero interview requests were declined or undeliverable.

##### **Alumna Focus Groups**

In each of the seven MENA countries included in the evaluation, the team's local researchers conducted a virtual focus group with TechGirls alumnae. In total, 35 alumnae (an average of five per country) participated in discussions between October 16 and November 14, 2020. All focus groups were conducted via a web-based communications platform. Focus groups lasted 91 minutes on average, with the shortest being 65 minutes and the longest being 105 minutes. A total of 15 focus group invitations were declined.

##### **Alumna Survey**

Concurrent with the other field work, the alumna survey was sent to all foreign alumnae in the MENA region. Of the 202 alumnae from the seven fieldwork countries, 175 were of the age of majority and received the survey link via email while the other 27 minor alumnae first received a request for parental consent via phone or email prior to administration of the survey. In total, the team was able to obtain parental consent and administer the survey to 16 minors. 19 surveys were





initially undeliverable via email and seven requests were declined (two declined via the survey platform while the others declined in response to a follow-up message). The Dexis team was able to obtain updated, verified contact information for 14 alumnae, and so a total of 186 surveys were able to be administered.

Along with six automatic email reminders from the survey platform, local researchers called and emailed the alumnae to remind them to complete the survey. These local researchers also offered to administer the survey over the phone at the alumnae's convenience, although the team only had valid phone numbers for 149 (73%) of the alumnae. 85 alumnae (69% of respondents) opted to complete the survey via phone while 38 (31% of respondents) completed it independently via the survey platform. In total, 123 alumnae (60.8%) completed the survey. Two duplicate complete responses were dropped and not included in the analysis. Including all 123 complete and 17 partial responses, 132 respondents (94%) opted to take the survey in English, while 8 respondents (6%) opted to take the survey in Arabic.<sup>15</sup>

The survey included an option to save and resume later. Of the 123 respondents, 32 opted to save and then came back to complete the survey days later. Range of days from start to end was 1-25 days. Additionally, 10 respondents started and finished the survey on the same day, but seemingly not in one sitting. For example, they started at 2:36 but did not submit till 9:48 (a period of over 7 hours). For the 81 respondents that completed the survey in one sitting, the average time to complete the survey was 45 minutes.

17 online surveys were partial and not completed.<sup>16</sup> All 17 respondents (100%) answered the questions in the first section on personal information; 5 respondents (29%) continued to answer the questions in the second section on program impact; 2 respondents (11%) completed part of the third section on networking but did not finish the survey. Answers from these 17 surveys were included in the analysis where possible.

*Table 1. Surveys Collected by Country*

	<b>Algeria</b>	<b>Egypt</b>	<b>Jordan</b>	<b>Lebanon</b>	<b>Morocco</b>	<b>Palestinian Territories</b>	<b>Tunisia</b>	<b>TOTAL</b>
Surveys issued <sup>17</sup>	27	24	27	27	25	28	28	186
Completed online	1	11	1	18	2	1	4	38
Completed by phone	17	0	23	0	11	21	13	85
Total completed surveys	18	11	24	18	13	22	17	123
Partial surveys	1	5	2	1	2	1	5	17
Declined surveys	2	0	0	0	3	1	1	7

<sup>15</sup> This figure includes the 17 partial responses, for a total of 140 respondents.

<sup>16</sup> This number does not include partial responses that were “test” entries by local researchers, duplicates of complete or other partial responses, or entirely blank.

<sup>17</sup> Although there are 202 alumnae in the respondent pool, only 186 surveys were able to be issued. A survey was considered “not issued” if 1) the minor's parents could not be contacted to obtain parental consent for their participation in the survey or 2) the original email address was invalid, and an alternative contact could not be verified.



	Algeria	Egypt	Jordan	Lebanon	Morocco	Palestinian Territories	Tunisia	TOTAL
Email failure <sup>18</sup>	2	8	5	2	2	0	0	19

*Table 2. Surveys Collected by Cohort*

	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Total completed surveys	12	9	12	16	16	18	19	21	123
Partial surveys	1	0	1	3	4	2	4	2	17

### STEM Expert Interviews

In each of the seven countries, the local researchers identified and interviewed STEM experts to gain a better sense of the local context as well as opportunities and constraints for young women in pursuing studies and careers in STEM fields. A total of 22 STEM experts participated in interviews between October 3 and November 22, 2022. Interviews lasted 44 minutes on average, with the shortest being 20 minutes and the longest being 97 minutes. 17 interviews were conducted via a web-based communication platform, such as Zoom, and five interviews were conducted via phone. Five interview requests were declined or undeliverable.

### Community Stakeholder Interviews

In the survey and focus groups, alumnae identified local community stakeholders who could provide feedback on their follow-on projects. The local researchers contacted a random sample of the community stakeholders identified, and interviewed a total of 14, two in each country. Six interviews were conducted by phone and eight interviews were conducted via a web-based communication platform between October 10 and November 25, 2020. Interviews lasted 42 minutes on average, with the shortest being 14 minutes and the longest being 85 minutes. Seven interview requests were declined or undeliverable.

*Table 3. Required Reporting by Stakeholder and Instrument*

	Number of participants	Number of requests declined	Percentage collected electronically	Average time to complete
Implementing Partner Interview	6	0	100%	43 mins.
Post Interview	14	0	100%	29 mins.
Alumnae Survey	123 complete	7	31%	45 mins.
Alumna Focus Group	35	15	100%	91 mins.
STEM Expert Interview	22	1	77%	44 mins.

---

<sup>18</sup> These email failure rates are from the initial survey invitation. Where possible, local researchers identified alternative valid email addresses for the respondents and forwarded the survey link to the valid address. In total, Dexis updated eight email addresses.



	Number of participants	Number of requests declined	Percentage collected electronically	Average time to complete
Community Stakeholder Interview	14	7	57%	42 mins.

## Phase Two

### U.S. Alumna Survey

Concurrent with the other field work, the evaluation team sent the survey to all U.S. alumnae. Of the 29 alumnae, 26 were of the age of majority and received the survey link via email while the other three minor alumnae first received a request for parental consent via email prior to administration of the survey. The Dexis team received **16 completed surveys** (15 self-administered and one administered by phone), and one alumna selected refuse and exited the survey. **The response rate was 58.6%.** Among the 15 respondents who started and finished the survey in one sitting, the average **time to complete the survey was 20.25 minutes.**

In addition, three alumnae opened and started the survey, but did not complete it. Of the three partial respondents, all answered the questions in the first section on personal information; one respondent continued to answer the questions in the second section on program impact. Answers from these three surveys were included in the analysis where possible.

Of the remaining nine alumnae who did not respond, three had invalid email addresses. The three alumnae who were minors did not respond to the outreach efforts to obtain parental consent, and therefore they did not complete the survey. Three other alumnae never responded.

The alumnae received seven automatic email reminders from the survey platform, and the evaluation team called three times and emailed the alumnae individually three times to remind them to complete the survey. The team also offered to administer the survey over the phone at the alumnae's convenience, although the team only had valid phone numbers for twenty (69%) of the alumnae.

### Job Shadow Hosts Surveys

Of the 41 contacts on the list shared with the evaluation team, three did not have an email on file, and 11 email addresses were out of date. The evaluation team was able to find new email addresses for three individuals and identified 10 others through LinkedIn. The evaluation team sent survey requests to 40 Job Shadow Hosts, of which **9 completed the survey** through the website. Two respondents refused in their responses to the evaluation team on LinkedIn, and one clicked refuse and exited the survey. **The response rate was therefore 29.3%.** Another two Job Shadow Hosts began the survey but did not complete it. Answers from these two surveys were included in the analysis where possible.

The survey included an option to save and resume later. Of the ten respondents, two opted to save and then came back to complete the survey one day later. For the eight respondents that completed the survey in one sitting, **the average time to complete the survey was 8.98 minutes.**

Along with seven automatic email reminders from the survey platform, the evaluation team followed up with the Job Shadow Hosts with one direct email and through LinkedIn to remind them to complete the survey. The team received phone numbers for 28 Job Shadow Hosts, but



four of these were invalid, and given that many offices remained closed due to the Covid-19 pandemic, the Hosts were not on location to answer office phone numbers.

### Program Staff Surveys

The evaluation team sent surveys to 40 Program Staff, twenty-one of whom were from Virginia Tech and nineteen of whom were former Legacy International staff. All emails appeared to successfully reach the recipients' email inboxes. Of the 40 recipients, 14 completed the survey (all self-administered), and two refused, and **the response rate was 40%**. Among the thirteen respondents that completed the survey in one sitting, the **average time to complete the survey was 7.6 minutes**.

Five additional program staff began but did not complete the survey. Answers from these surveys were included in the analysis where possible.

Along with eight<sup>19</sup> automatic email reminders from the survey platform, the evaluation team worked with representatives from Legacy International and Virginia Tech to encourage program staff members to take the survey and to remind them to complete the survey. The team also offered to administer the survey over the phone at the Program Staff Member's convenience. However, the team did not have phone numbers for the staff.

### Host Family Surveys

The evaluation team received a list of 65 Host Families, three of whom had no contact information and of whom only 58 had email addresses. Of those 58, 17 email addresses were invalid. Among the 41 Host Families who received a survey invitation, 12 completed the survey (one by phone and 11 self-administered), and four refused. **The response rate was 24.6%**. For the eleven respondents that completed the survey in one sitting, the **average time to complete the survey was 29.71 minutes**.

Four Host Families began and did not complete the survey. Answers from these four surveys were included in the analysis where possible.

Along with six automatic email reminders from the survey platform, additional reminders were sent to the Host Families from the evaluation team and Legacy International to encourage their participation in the survey. The team also offered to administer the survey over the phone at the Host Family Member's convenience.

---

<sup>19</sup> Additional email reminders were sent at the request of Virginia Tech to help with the response rates.



## ANNEX E: SOCIAL NETWORK ANALYSIS

### A summary of the TechGirls Social Network

The TechGirls Social network, overall, is connected through the ego networks and cliques of the girls, TECHWomen, mentors, host families, job shadow hosts, and the staff. There are many cliques, formed through a clique analysis, and also by exploring the network maps and ego maps. No one person or group of people dominate the network. The network is very sparse, considering over 90,000 potential connections but only 1411 actual ties to or from one individual to the other. But from the clique analysis we can see that it is very tied together. In addition, there are many Cutpoints throughout the network, where larger clusters or clumps of individuals are tied into the bigger network.

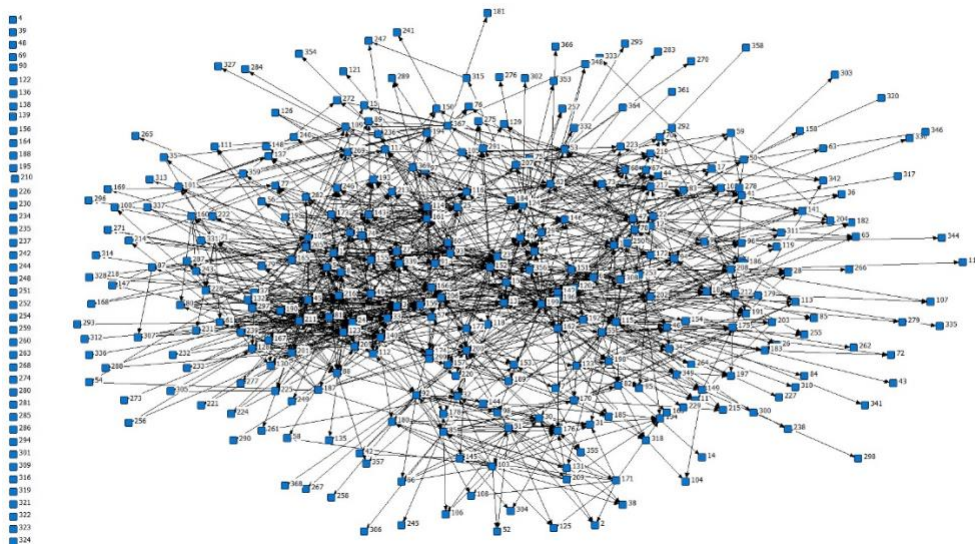
In order to build this network a clear focus would have to be decided – on a country, or a cohort year. Understanding more about the strong clique structure might identify areas (nodes) who could support building up the cliques. For example, the clique size ten overlap members. Or identifying strong members of other cliques and supporting them in building their network. The Evaluation Team explored in this study the type of relationship the girls had with others in a limited way– social, as a mentor, as a host family, job shadow host and staff. These rolls are coded in the maps by rim color.

### The Data

The survey data for the TechGirls social network asked several categories of participants to indicate with whom they had been in contact with over a variety of relationships. The surveys included: TechGirls survey (survey 1), TECHWomen Survey, TechGirls United States survey (survey 2), Host Family survey, Job Shadow Host survey, and staff survey. This study explored these relationships, which formed the TechGirls network. In each TechGirls survey (TG), the TG also named individuals they considered mentors, some were TECHWomen, and some were other mentors; they also listed names of host families they kept in contact with as well as staff members. All of the individual surveys were combined into one database.

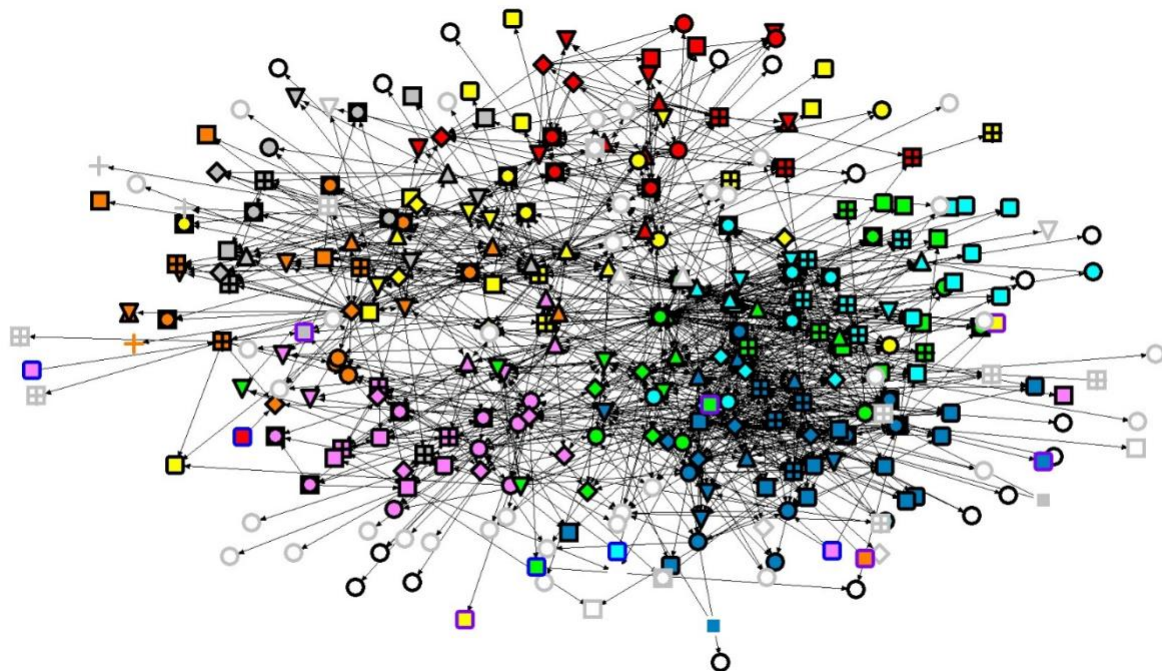
The final count of individuals in the network is 367. There was a total of 95790 observations. An observation is a cell across or down a matrix with a 1, which indicated a relationship. Data is entered from a person across the matrix. In the down column, in the same order as the rows, are the members who were selected. The rows are the out measures, the columns, (same data) can be totaled for the number of times a person was chosen, the in measure. There were 1411 cells with data, each indicating a tie or connection to someone else. Not all 1411 lines are seen on the maps, because the data is directional and the direction of the choice is indicated by arrows, and two people will share one line if both selected each other. Each cell is a connection from one person to another. There were 59 isolates in the data, which were removed for the maps and the data analysis. Here is the first map of these connections.





**Figure 2 First network layout with isolates**

In this map we can begin to see clusters, but not many details. There were 59 isolates, and many pendants, which are placed around the edges of the network. Isolates did not complete a survey and were not chosen by others. Pendants generally have no or only one connection out (completed the survey) and/or one or two connections in (they did not complete any survey but were listed by others). To analyze the data, the Evaluation Team removed the isolates and coded the nodes by country (shape), year of participation (color), and color of rim (role in the network). Several individuals participated over several years, these were coded by the first year they participated. Here is the final coded map.



**Figure 3. Coded Map Shape by Country, Color by Year, Rim colored by Role**

We can see in the coded map, how cohorts form around years, buy the colors. The shapes





indicate the countries, and the rims indicate the role of each individual.

### Key for node shape, color, and rims

#### Country & Shape on Map

		Frequency	Percent	Cumulative Percent
Valid	Country Unknown – Circle	64	17.4	17.4
	Algeria - Circle	31	8.4	25.9
	Egypt - Square	31	8.4	34.3
	Jordan - Jordan	30	8.2	42.5
	Lebanon - Box	36	9.8	52.3
	Libya - Circle	5	1.4	53.7
	Morocco - Down triangle	30	8.2	61.9
	Palestinian Territories – Circle in a box	34	9.3	71.1
	Tunisia - Diamond	31	8.4	79.6
	United States – Rounded Square	66	18.0	97.5
	Yemen - Thing	9	2.5	100.0
	Total	367	100.0	

Algeria	Circle
Egypt	Square
Jordan	Up triangle
Lebanon	Box
Morocco	Down triangle
Palestinian T	Circle in a box
Tunisia	Diamond
	Rounded
USA	Square
Yemen	Thing
Unknown	Circle

#### Year of Participation

		Frequency	Percent	Cumulative Percent
Valid	Unknown	81	22.1	22.1
	2012	26	7.1	29.2
	2012-19	2	.5	29.7
	2013	26	7.1	36.8
	2013-14	1	.3	37.1
	2013-19	1	.3	37.3
	2014	33	9.0	46.3
	2015	36	9.8	56.1
	2015-16	1	.3	56.4
	2015-17	1	.3	56.7
	2015-18	1	.3	56.9
	2016	33	9.0	65.9
	2016-18	2	.5	66.5
	2016-19	3	.8	67.3
	2017	35	9.5	76.8
	2017-18	1	.3	77.1
	2017-19	3	.8	77.9
	2018	37	10.1	88.0
	2018-19	1	.3	88.3
	2019	43	11.7	100.0
	Total	367	100.0	

Note: A white circle node means that the country was unknown, and the year of

	2012.000
	2013.000
	2014.000
	2015.000
	2016.000
	2017.000
	2018.000
	2019.000

participation was unknown. The Color of the Rim indicates their role.



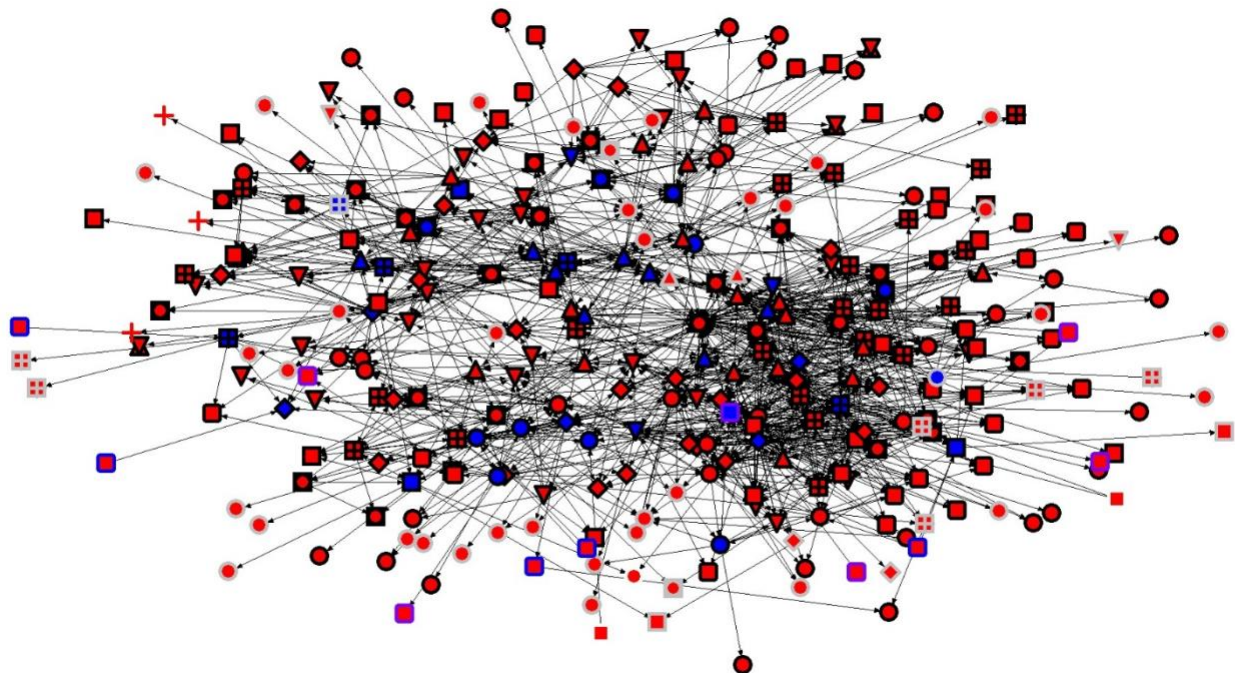
		Role		
		Frequency	Percent	Cumulative Percent
Valid	HOST – Rim Dk Blue	12	3.3	3.3
	SHADOW HOST - Olive	9	2.5	5.7
	STAFF – Dk Blue	15	4.1	9.8
	TGIRL - Black	276	75.2	85.0
	TW/MENTOR - Gray	55	15.0	100.0
	Total	367	100.0	

### The Overall Network

The overall network is one component, excluding the 59 isolates. A component is a set of nodes who are able to get a message, information, etc. to every member of the network through some path. They may not be directly connections, but through paths through others, the message or information is passed on. This means that though the overall network is spread out, a message from the far-left side of the map would somehow get through to a node on the far right.

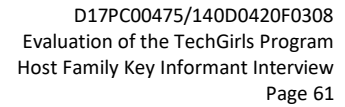
### Cutpoints & Brokers

In this next sociogram we can see where the brokers and cutpoints are (measured in Netdraw) The blue nodes are a broker or a cutpoint. Thirty-eight Cutpoints were identified. If a cutpoint is removed, all of their ties would be disconnected from the larger network. Cut points can play different roles, they can be a cutpoint, or a broker allowing access to the network. They can be gate keepers in keeping others out of the network or linking others to the network. A suggestion is that in this network cutpoints are brokers allowing access to the network.

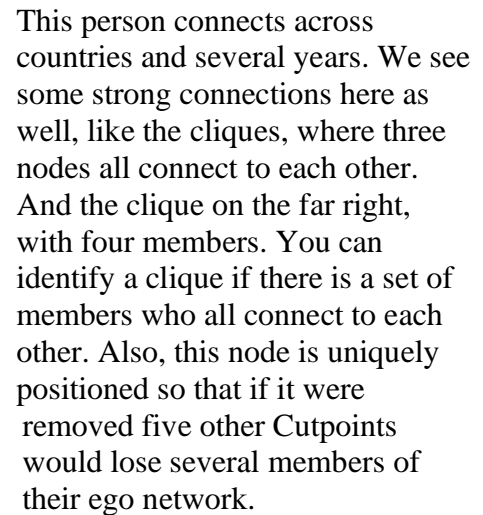


**Figure 3 Cutpoints & Brokers**

Cutpoints indicate a position within the network. These positions are important because of the role they play. A node may look as if might be a cutpoint like one node almost in the center of the network above, but measures indicate that it is not, and that the nodes connected to it have



Here are a few examples of the ego networks for a sample of cutpoints. Ego networks are all of the ties out from the cutpoint and all the ties in. And all of the ties between the members of this set of nodes.



### Figure 4: Ego Network Example

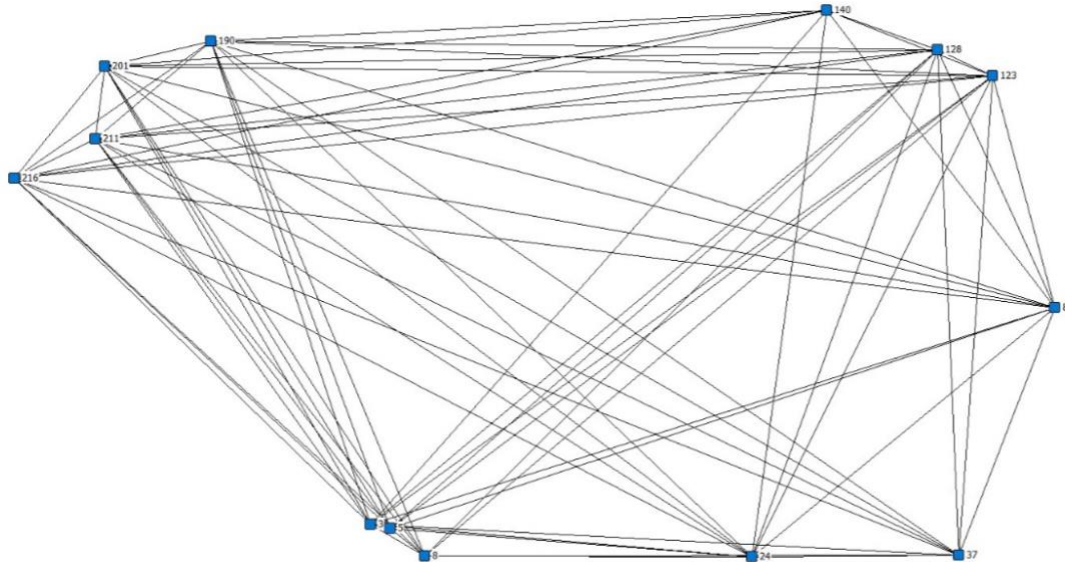
Cliques are an interesting measure of a network. Cliques form a set of members who all connect to each other. We ran strong cliques, in a strong clique if there are five members each has to be connected to the other four members, in a weak clique one member may have only ties to three members.

For example, here are the five cliques with ten members each. And below is the map of how they connect.

- We can see the overlap of members who are in more than one of these large cliques, such as person 3, 5, 211 and 216. It also appears that there are three distinct clusters – two in the upper left and right and one along the bottom. This means that they are clustered in the larger network in different places within the network. They are not all located near each other in the larger



network, but their connections reach across the larger network. I would suggest, with the large number of cliques, that a very strong clique structure holds the network together. These may be small – 3 members – with overlaps, or large like the size 10.



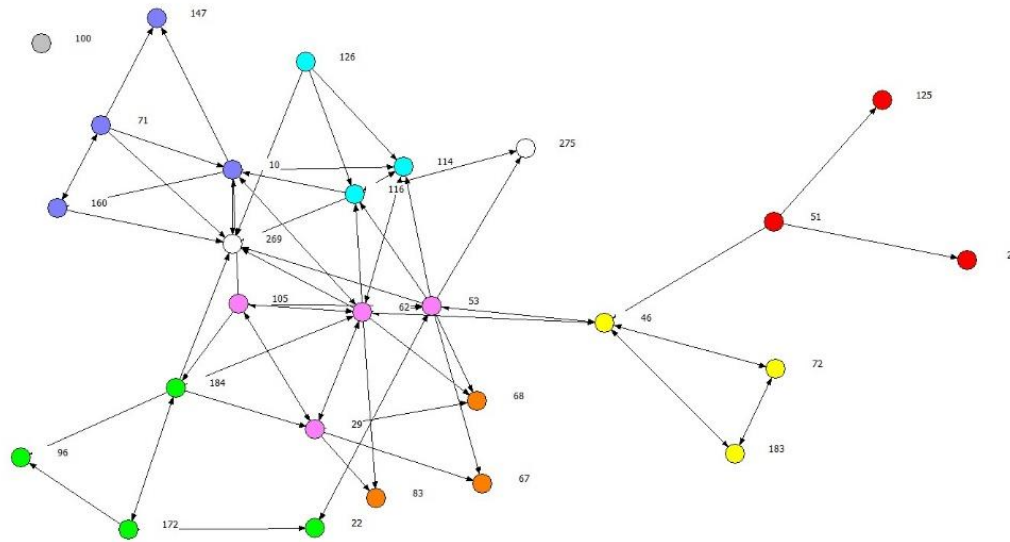
**Figure 5 Clique Size 10**

### Countries

The TechGirls were from ten countries. We explored the networks for each country separately. There are unique patterns for each country. Each of the maps was created with only the members from that country. (Not all members of the network had country or year data so there may be others that these members are connected to as well as connections across countries.)



## Algeria

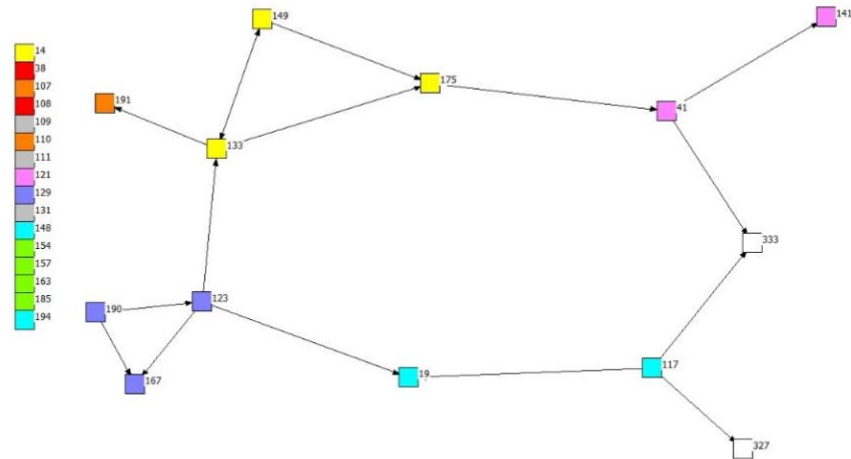


**Figure 6. Algeria By Year**

There are two Cutpoints in this network, node 46 AND 51, which are easily seen on the right side of the map. The yellow nodes are from 2012, and the red nodes are from 2015. The 2012 nodes are a clique, as they are all connected to each other. There are other cliques as well within this network. You can see one from 2017 on the bottom left (green) and one member of this clique overlapping with a four-person clique for year 2016 (pink). These cliques are not strong cliques, as not every node has a mutual tie to someone who connects to them, but looking at undirected ties, regardless of the direction of the arrows, you can see an overall structure.



## Egypt



**Figure 7 Egypt**

The connections within the members of the Egypt network are very sparse, with many isolates and Cutpoints. You can identify the Cutpoints very easily as the nodes within the inner string of nodes. Almost each one is a cutpoint. Again, the members may connect to members in other countries, or be a member with country listing.





## United States

There are 40 members in the United States only network, and there are only two nodes connected by one tie between them.

## Ego Networks

The data suggests that ego networks and cliques are what creates and hold together the overall structure of the TechGirls network. Below is a random node, which looked well embedded and had multiple connections. In this first ego network we see how this ego ties together two sides, which form several cliques which overlap. Some connections on the left are from the same country, others more on the right are different countries.

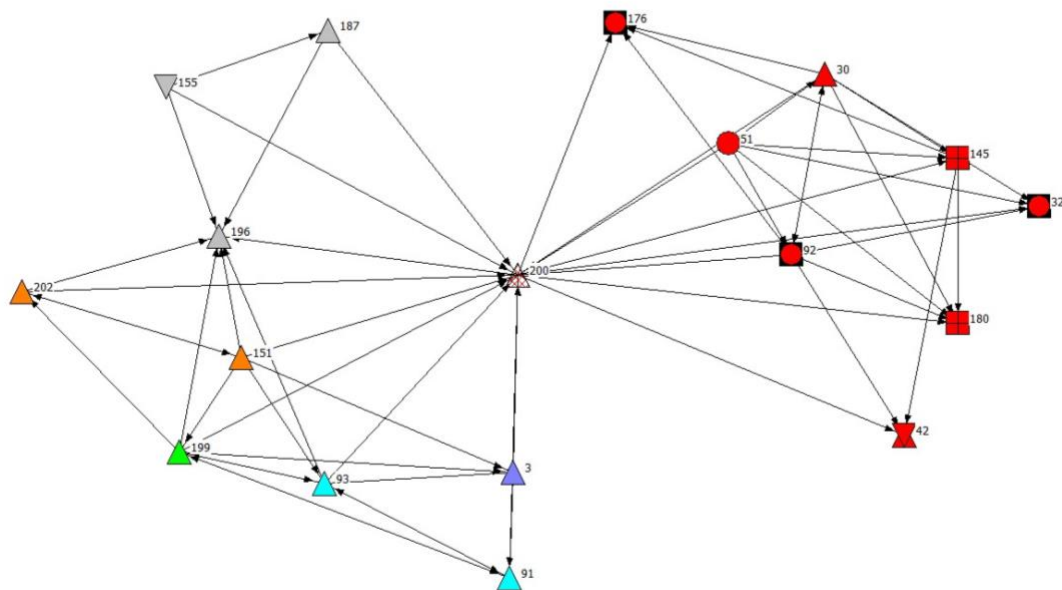


Figure 8 Ego Network Red Jordan 2015



## Larger Maps

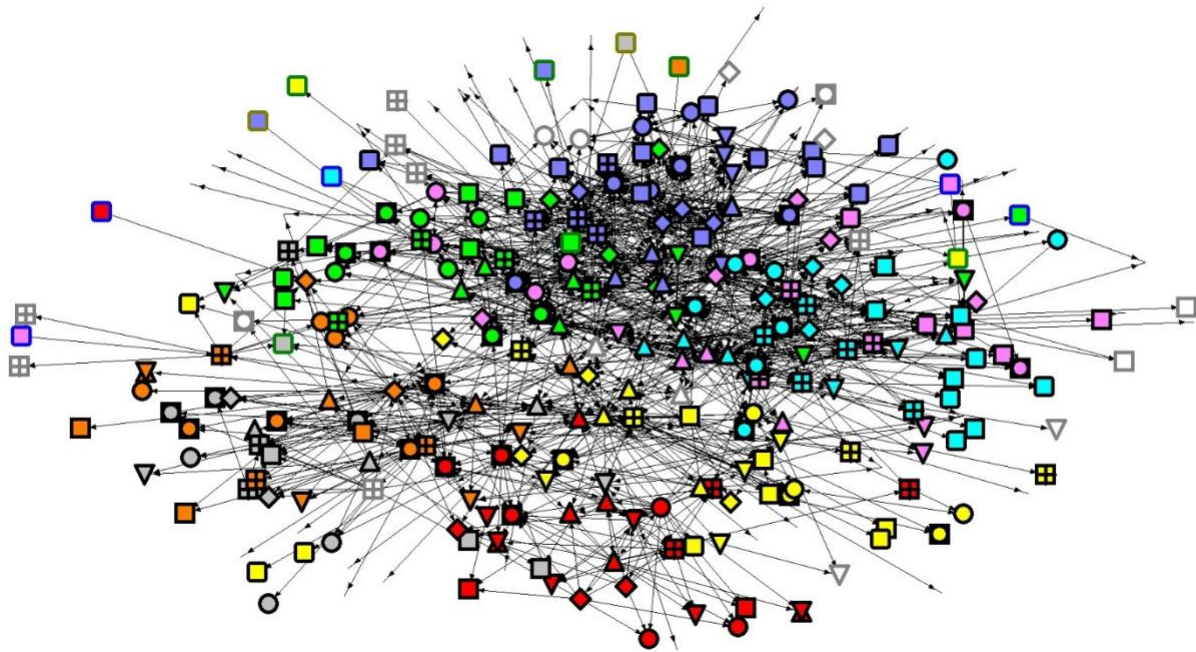


Figure 9. Coded Map

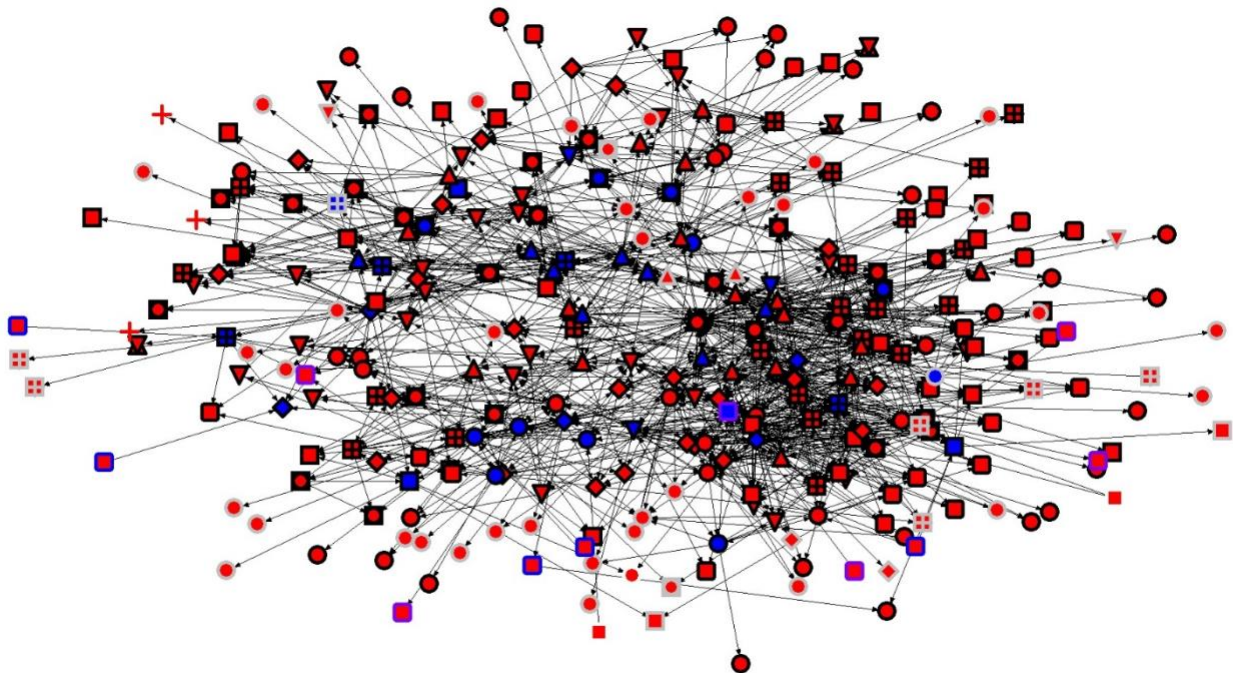
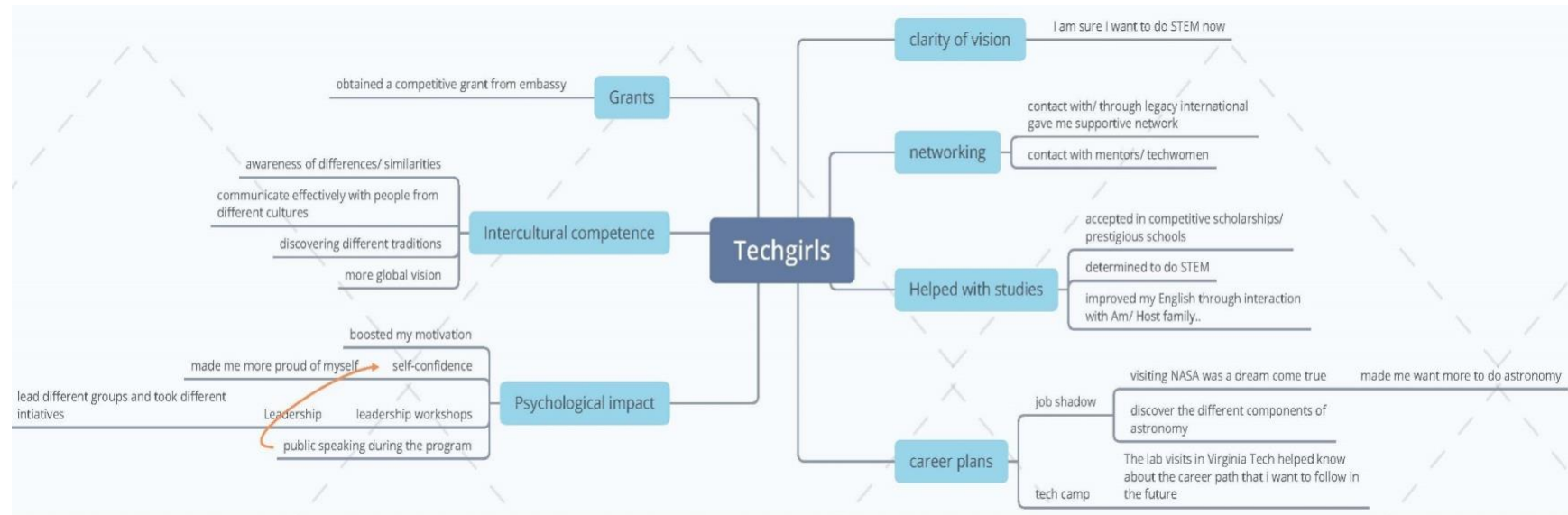


Figure 10 Cutpoints



## ANNEX F: RIPPLE EFFECT MAP

The following map was developed by the FGD participants in Algeria during their discussion.





## ANNEX G: CONFLICT OF INTEREST CERTIFICATIONS

Key Personnel: Christine Allison, Evaluation Team Leader

### CONFLICT OF INTEREST CERTIFICATE

To: Michael McGuire, Contracting Officer

Through: Department of State

From: Christine Allison  
Contractor Employee

I certify that I am not aware of any matter that might limit my ability to work on contracts and related actions in an objective and unbiased manner or which might place me in a position of a conflict, actual, potential, or apparent, between my responsibilities as a support contractor.

In making this certification, I have considered all my stocks, bonds, and other financial interests, and employment arrangements (past, present, or under consideration) and, to the extent known by me, all the financial interests and employment arrangements of my spouse, my minor children, and other members of my immediate household.

If, after the date of this certification, any person, firm, or other organization with which, to my knowledge, I (including my spouse, minor children, and other members of my immediate household) have a financial interest, or with which I have (or had) an employment arrangement, becomes involved in the acquisition I am responsible for, I will notify the Contracting Officer of this apparent conflict of interest. In such case, until advised to the contrary, I will not participate further in any way (by rendering advice and making recommendations) on the applicable contract and/or related action.

Christine Allison

Name

Christine Allison

Christine Allison (Apr 21, 2020)

Signature

Apr 21, 2020

Date



## ANNEX H: DATA COLLECTION INSTRUMENTS

### Alumnae Focus Group Discussion Guide

#### TechGirls Evaluation: Alumnae Focus Group Discussion Guide

##### Recruitment script:

Hello, my name is [*state name*], and I am working with Dexis Consulting Group to conduct an evaluation of the Department of State's TechGirls Program. By now you have received an invitation to complete a survey for the evaluation, and we thank you for taking the time to complete this survey. Additionally, we would appreciate the opportunity to have a more in-depth discussion with you to learn more about your experience and opinions about the TechGirls Program. As such, I would like to invite you to participate in a focus group discussion on the TechGirls Program. Would you be willing to participate in an approximately 90-minute discussion on [DATE] at/on [LOCATION or VIRTUAL PLATFORM] from [START and END TIME]?

[If yes, schedule FGD. If no, thank the individual and end the call.]





## TechGirls Evaluation: Alumnae Focus Group Discussion Guide (Virtual)

Date: \_\_\_\_\_ Start Time: \_\_\_\_\_

**Moderator:** *“Hello, my name is \_\_\_\_\_, and I will be leading this focus group discussion. We are here to gather information about your experience with the U.S. Department of State’s TechGirls Program. This information, along with information collected through other focus groups, interviews, and surveys, will help us assess the impact that TechGirls has on its participants and develop recommendations to improve the program in the future. Your participation in the discussion today is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may choose not to answer any questions you are not comfortable answering. The information that you provide in the discussion will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the de-identified qualitative analysis from open-ended responses. However, the notes and transcripts from this discussion, including personally identifying information, will be held in confidence by the evaluation team and will not be shared with anyone else. Do you have any questions for me about the purpose of today’s discussion, how we will use the information you provide or how we will protect your confidentiality?” [Answer any questions from the participants.]*

[The moderator asks each focus group participant to share her name and program year with the other participants in the focus group. After introductions from participants, the moderator explains the focus group procedures.]

**Moderator:** *“This focus group discussion will last approximately one and a half hours. There are no right or wrong answers to the questions I am going to ask you. We want to capture the full range of opinions that you may have, so please feel free to disagree. However, please speak one person at a time, because we are recording the focus group session. Recording the focus group will allow me to concentrate on your responses and ensure that I do not miss anyone’s input during the discussion. If, at any time, anyone feels that they would prefer to speak with the recorder off, please let me know and I will stop the recorder. Also, please note that the information that is shared here should stay here and not be shared with others who did not participate in the focus group.”*





## Section 1. TechGirls Program Impact

1. To get us started, would you please share with us one thing you learned through the TechGirls program that was most helpful to you. [*Probe on why what they learned was helpful, if it is not explained, and how they used that knowledge.*]
2. How did the TechGirls program influence your studies after the program, if at all? [*Probe on choice of major/minor, selection of university, internships, study abroad, etc.*]
3. How did the TechGirls program influence your interactions with your community? [*Probe on outcomes of their post-program projects and volunteer activities.*]
4. How did the TechGirls experience influence your thinking about your career options and goals, if at all? [*Probe on career path, sector of work (private, public, nonprofit), specialization, etc.*]

## Section 2. Networks

Thank you. We would like to shift the conversation now to the networks you may have created or linked into after the program.

5. Can you start by telling us a little about your connections to other TechGirls in your own cohort or from other years? [*Probe on TechGirls from the same country, from the U.S., from other countries; probe on the focus/purpose of those connections – friendship, collaboration, mentorship, other.*]
6. What modes of communication do you usually use to network with other TechGirls? [*Probe on in-person, phone, SMS, social media, social media messaging platforms, virtual conferencing platforms, etc.*]
7. Would you say that you have been supported by the TechGirls alumnae network? If so, how?
8. Have you remained in contact at all with your job shadow host or host family from your program? [*Probe on the focus/purpose of those connections and the mode of communication – phone calls, SMS, social media, in-person visits, etc.*]
9. What, if any, has been your experience connecting with TechWomen alumnae? [*Probe on the focus/purpose of those connections – mentorship, collaboration, employment, other.*]



10. In your view, what have been the most important factors in enabling or facilitating those connections with other TechGirls and TechWomen? [*Probe on participation in TechWomen-TechGirl Club activities and their utility*]
11. What modes of communication do you usually use to network with TechWomen? [*Probe on in-person, phone, SMS, social media, social media messaging platforms, virtual conferencing platforms, etc.*] What modes of communication are best for networking here? What, if any, have been the obstacles to making or maintaining connections? [*Probe on technical barriers, social barriers, security issues, etc.*]

### **Section 3. Recommendations**

12. What could be done differently in future rounds of the TechGirls program to have a greater impact on participants' pursuit of technology, science, and engineering fields?
13. What could be done in the future to improve support for networks of women in technology, science, and engineering fields?
14. Do you have any other comments you would like to add?

**Thank you for participating in the discussion today!**

End Time: \_\_\_\_\_

[Moderator, please ensure you have a list of the participants who attended the focus group]



## TechGirls Evaluation: Alumnae Focus Group Discussion Guide (In-person)

**Supplies Needed:** Wall or tabletop on which to do ripple effect mapping, adhesive chart paper, sticky notes of various sizes and colors, markers for each participant and facilitator, timer.

Date: \_\_\_\_\_ Location: \_\_\_\_\_

Start Time: \_\_\_\_\_

**Moderator:** “Hello, my name is \_\_\_\_\_, and I will be leading this focus group discussion. We are here to gather information about your experience with the U.S. Department of State’s TechGirls Program. This information, along with information collected through other focus groups, interviews, and surveys, will help us assess the impact that TechGirls has on its participants and develop recommendations to improve the program in the future. Your participation in the discussion today is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may choose not to answer any questions you are not comfortable answering. The information that you provide in the discussion will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the de-identified qualitative analysis from open-ended responses. However, the notes and transcripts from this discussion, including personally identifying information, will be held in confidence by the evaluation team and will not be shared with anyone else. Do you have any questions for me about the purpose of today’s discussion, how we will use the information you provide or how we will protect your confidentiality?” [Answer any questions from the participants.]

[The moderator asks each focus group participant to share her name and program year with the other participants in the focus group. After introductions from participants, the moderator explains the focus group procedures.]

**Moderator:** “This focus group discussion will last approximately one and a half hours. We are going to start with a group exercise to map out the impacts of the program. After that, we will have a further discussion of its impacts. There are no right or wrong answers to the questions I am going to ask you. We want to capture the full range of opinions that you may have, so please feel free to disagree. However, please speak one person at a time, because we are recording the focus group session. Recording the focus group will allow me to concentrate on your responses and ensure that I do not miss anyone’s input during the discussion. If, at any time, anyone feels that they would



*prefer to speak with the recorder off, please let me know and I will stop the recorder. Also, please note that the information that is shared here should stay here and not be shared with others who did not participate in the focus group."*

## **Section 1. TechGirls Program Ripple Effect Map (60 minutes)**

1. To get us started, we are going to do a brief exercise. I would like you to pair up with another person (preferably someone you do not know or know too well), and in 10 minutes, share with each other how participating in TechGirls has affected your life – what achievements or successes you feel you have had as a result. Use the [select one specific color] sticky notes and write down each of the impacts, achievements, and successes. At the end of 10 minutes, I will call us back together, and we will map out what you discussed. Does anyone have any questions? *[Answer questions, set a timer for 10 minutes, and be available to answer questions as pairs work together.]*
2. Okay, for the next portion of the focus group, we are going to map out the experiences you just discussed. Let's start with identifying the major areas in which you feel TechGirls had an impact on your life. *[Using chart paper and sticky notes on a wall/tabletop, keeping a sticky note for TechGirls in the center, block out areas of impacts to the edges/corners of the wall/tabletop.]*
3. And now, let's post your sticky notes with the specific impacts you discussed in pairs. *[Allow participants time to post the sticky notes in the appropriate categories. When they are done, briefly summarize the impacts they posted.]*
4. Now, let's talk briefly about each one of these areas and how the program had that impact. Let's start with *[select one category of impacts]*. What were the program components that led to a change in your knowledge, skills, or attitudes? We will write those on *[choose color/size]* sticky notes. What were the supports that you had when you came back? We will write those on *[choose color/size]* sticky notes. In addition, we can use *[choose color/size]* sticky notes to identify obstacles or challenges that you had in the process. If you were able to overcome or resolve the obstacle or challenge, let's use a *[choose another color/size]* sticky note to capture how you did that. *[Allow the group to work in pairs, individually, or as a full group. Encourage them to start posting their sticky notes on the wall/tabletop. As they discuss, try to clarify cause and effect as much as possible and additional resources/supports or other factors that led to the final outcomes. Probe on the network of TechGirls and TechWomen and its impact, if any. Take several pictures of the final map when everyone has agreed it is complete.]*

## **Section 2. Discussion (20 minutes)**

5. Based on your own experience, and the map we have just built here, what, in your view, is



the most significant change for participants of the TechGirls program?

6. In your view, what have been the most important factors in enabling or facilitating connections with other TechGirls and TechWomen? [*Probe on participation in TechWomen-TechGirl Club activities and their utility*]
7. What, if any, have been the obstacles to making or maintaining connections? [*Probe on technical barriers, social barriers, security issues, etc.*]

### **Section 3. Recommendations (10 minutes)**

8. What could be done differently in future rounds of the TechGirls program to have a greater impact on participants' pursuit of technology, science, and engineering fields?
9. What could be done in the future to improve support for networks of women in technology, science, and engineering fields? What modes of communication best support networking here?
10. Do you have any other comments you would like to add?

**Thank you for participating in the discussion today!**

End Time: \_\_\_\_\_

[Moderator, please ensure you have a list of the participants who attended the focus group]



## Alumna Survey

### TechGirls Evaluation: Alumna Survey

#### [Over 18 Consent – Online Administration]

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 43 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By clicking the “Consent and enter survey” button below, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).





## Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

## CONSENT TO PARTICIPATE

By clicking the button to enter the survey below, you are giving your consent to participate in this evaluation. If you do not wish to participate, please click the exit survey link below.

Consent and Enter Survey ☐

Refuse and Exit Survey ☐

---



**[Over 18 Consent – Administered by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. Our task is to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, you have unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 43 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask you to share contact information for the connections that you mention, in the cases where we do not already have updated or valid contact information for



these parties. As with all other questions, you may skip or decline to answer any questions you are not comfortable answering.

- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*



**[Under 18 Consent – Obtained by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. Our task is to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your daughter has unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 43 questions and should take no more than 45 to 60 minutes to complete.

**Your daughter's participation in this survey is voluntary, and she is free to end the survey at any time. By agreeing to allow your daughter to participate in the evaluation, you are consenting to the following terms:**

- Her participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to her. However, her inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. She may skip any questions she is not comfortable answering.
- The information that she provides in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses she provides may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about her connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about her connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask your daughter to share contact information for the connections that she mentions, in the cases where we do not already have updated or valid contact



information for these parties. As with all other questions, she may skip or decline to answer any questions she is not comfortable answering.

- The data she provides may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed to the assent script with the alumna. If the respondent says no, thank the respondent and end the call.]*



**[Under 18 Assent – Obtained by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your daughter has unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 43 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are assenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may want you to share contact information for the connections that you mention, in the cases where we do not already have updated or valid contact information for these parties. As with all other questions, you may skip or decline to answer any questions you are not comfortable answering.





- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the assent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*



Thank you for agreeing to complete the survey! The estimated time to complete the survey is 45 to 60 minutes. You may save your progress and return later to complete the survey, if needed. Please answer each question to the best of your ability.

## Section 1. Personal Information

1. First Name(s): \_\_\_\_\_ Last Name(s): \_\_\_\_\_
2. Home Country: (Drop-down list: Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, Yemen)
3. TechGirls Program Year: (Drop-down list – 2012-2019)
4. Have you attended university? No, still in high school (skip to Q6); no, finished high school but did not attend university (skip to Q6); yes, currently in university; yes, but no longer in university
5. What is/was your main field of study in university (i.e., major)? \_\_\_\_\_
6. Are you currently working or have you recently worked (within the last two years) in a paid or volunteer capacity? Yes, in a paid capacity; yes, in a volunteer capacity; yes, in a paid and volunteer capacity; no, not working in a paid or volunteer capacity (skip to Q9)
7. If you are/were working or volunteering, is your work in a technology, science, or engineering field? Yes, no
8. Please describe your position \_\_\_\_\_

## Section 2. TechGirls Impact

9. Most impactful program component(s) – Please rank the components, with 1 being the MOST impactful and 7 being the LEAST impactful (drag and drop the items to re-order): tech camp, job shadow, community service, host family stay, follow-on project at home, cultural activity, interaction with Americans?
10. Please explain why components 1-3 were impactful
11. Please explain why components 5-7 were not impactful
12. What has been the most important outcome of the TechGirls experience for you personally?
13. What skills have you learned through your participation in the TechGirls program? (select all that apply) STEM, leadership, public speaking, networking, intercultural communication, other (please specify): \_\_\_\_\_
14. Have you been able to apply the skills you learned in the TechGirls program? Yes, no (skip to Q16)
15. Please describe how you have applied the skills you learned \_\_\_\_\_
16. Please describe what prevented you from applying the skills you learned \_\_\_\_\_
17. After participating in the TechGirls program, what was your level of interest in a career in technology, science, or engineering? Less interested than before the program, the same as before the program, more interested than before the program



18. How would you describe the change in your awareness about opportunities to work in technology, science, or engineering as a result of the TechGirls program? No change, slight change, moderate change, significant change
19. How would you describe the impact of the TechGirls program, if any, on your studies?  
\_\_\_\_\_
20. How would you describe the impact of the TechGirls program, if any, on your career or career plans? \_\_\_\_\_
21. What recommendations would you make to strengthen the program for future cohorts?  
\_\_\_\_\_

### Section 3. Networking (TechGirls Alumnae)

22. Since returning from your TechGirls program, have you maintained contact (through phone calls, text messages, emails, in-person meetings, etc.) with other TechGirls or TechGirls alumnae from other years? Yes, no (skip to Q26)
23. Please answer the following for each TechGirls alumna with whom you have had contact (Note: If you had contact with more than one TechGirls alumna, please write only one name here. You will be able to add information about additional TechGirls alumnae in the next section.):

Name	Home Country	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen	(DD/MM/YYYY if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague	Low Moderate High

24. Have you experienced any difficulty maintaining contact with other TechGirls alumnae since returning? No, no difficulty (skip to Q26); yes, moderate difficulty; yes, extreme difficulty
25. Please describe what has been difficult \_\_\_\_\_



### Networking (TechWomen Alumnae)

26. Since returning from your TechGirls program, have you had contact (through phone calls, text messages, emails, in-person meetings, etc.) with TechWomen alumnae? Yes, no (skip to Q30)
27. Please answer the following about your contact with the TechWomen alumna (Note: If you had contact with more than one TechWomen alumna, please write only one name here. You will be able to add information about additional TechWomen alumnae in the next section.)

Name	Home Country	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	Algeria, Cameroon, Egypt, Jordan, Kazakhstan, Kyrgyzstan, Kenya, Lebanon, Libya, Morocco, Nigeria, Pakistan, the Palestinian Territories, Rwanda, Sierra Leone, South Africa, Tajikistan, Turkmenistan, Tunisia, Uzbekistan, Yemen, Zimbabwe	(DD/MM/YYY – if you do not recall the date please enter 01)	(DD/MM/YYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague	Low Moderate High

28. Have you had contact with another TechWomen alumna? Yes, no (if yes, loop Q28 and 29 until respondent selects no; no, move to Q31)
29. Have you participated in any activities at TechWomen-TechGirls Clubs? Yes, no (skip to Q33)
30. What TechWomen-TechGirls Club activities have you participated in? (select all that apply) Summit/reunion meet up, tech training, networking event, other (please specify)
31. What recommendations would you make to strengthen the TechGirls and TechWomen



networks? \_\_\_\_\_

### Networking (Mentors)

32. Are there other people in the technology, science, or engineering sectors in your country who have been mentors to you? Yes, no (skip to Q37)
33. Please answer the following about your contact with your mentor. (Note: If you had more than one mentor, please write only one name here. You will be able to add information about additional mentors below.)

Name	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	(DD/MM/YYYY – if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague Professor/Teacher Family Member	Low Moderate High

34. Have you had another mentor? Yes/no (if yes, loop Q34 and Q35 until respondent selects no; no, move to Q37)

### Networking (Program Staff)

35. Since returning from your TechGirls program, have you had contact (through phone calls, text messages, emails, etc.) with program staff, such as Tech Camp staff or group/trip leaders? Yes, no (skip to Q39)
36. Please answer the following about your contact with the program staff (Note: If you had contact with more than one program staff member, please write only one name here. You will be able to add information about additional program staff in the next section.)



Name	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	(DD/MM/YYYY – if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague Professor/Teacher	Low Moderate High

37. Have you had contact with other program staff? Yes/no (if yes, loop Q37 and Q38 until respondent selects no; no, move to Q39)

**Networking (Job Shadow Host)**

38. Have you remained in contact with your job shadow host from your TechGirls program? Yes, no (skip to Q41)

39. How frequently are you in contact? Daily, weekly, biweekly, monthly, quarterly, annually (skip to Q42)

40. Did you attempt to maintain contact? Yes, no

**Networking (Host Family)**

41. Have you remained in contact with your host family from your TechGirls program? Yes, no (skip to Q44)

42. How frequently are you in contact? Daily, weekly, biweekly, monthly, quarterly, annually (skip to end)

43. Did you attempt to maintain contact? Yes, no

**You have completed the TechGirls Alumna survey. Thank you for your assistance!**





## Alumna Survey (US)

### TechGirls Evaluation: U.S. Alumna Survey

#### [Over 18 Consent – Online Administration]

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 45 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By clicking the “Consent and enter survey” button below, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask you to share contact information for the connections that you mention, in the cases where we do not already have updated or valid contact information for these parties. As with all other questions, you may skip or decline to answer any questions you are not comfortable answering.
- The data you provide may be reanalyzed at a later date for a follow-up study or



other purpose approved by the U.S. Department of State. The data may be made available to third parties as required by law.

- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

### Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

### CONSENT TO PARTICIPATE

By clicking the button to enter the survey below, you are giving your consent to participate in this evaluation. If you do not wish to participate, please click the exit survey link below.

Consent and Enter Survey ☐

Refuse and Exit Survey ☐

---



**[Over 18 Consent – Administered by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. Our task is to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, you have unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 45 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask you to share contact information for the connections that you mention, in the cases where we do not already have updated or valid contact information for these parties. As with all other questions, you may skip or decline to answer any



questions you are not comfortable answering.

- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*

**[Under 18 Consent – Obtained by Phone/Web-based Communication Platform]**



[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. Our task is to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your daughter has unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 45 questions and should take no more than 45 to 60 minutes to complete.

**Your daughter's participation in this survey is voluntary, and she is free to end the survey at any time. By agreeing to allow your daughter to participate in the evaluation, you are consenting to the following terms:**

- Her participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to her. However, her inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. She may skip any questions she is not comfortable answering.
- The information that she provides in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses she provides may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about her connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about her connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section 1 of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask your daughter to share contact information for the connections that she mentions, in the cases where we do not already have updated or valid contact information for these parties. As with all other questions, your daughter may skip or decline to answer any questions she is not comfortable answering.
- The data she provides may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.



- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed to the assent script with the alumna. If the respondent says no, thank the respondent and end the call.]*

**[Under 18 Assent – Obtained by Phone/Web-based Communication Platform]**





[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of the program to date and to provide recommendations to strengthen the program in the future. We especially want to understand how alumnae have benefited from the TechGirls and TechWomen networks. As an alumna of the program, your daughter has unique perspectives will assist us in understanding the impact of TechGirls. The survey contains 45 questions and should take no more than 45 to 60 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are assenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the qualitative analysis from open-ended responses, with all personal identifying information removed.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your connections with other TechGirls, TechWomen, and other mentors may be used to generate graphic representations of the linkages within and across countries.
- Responses to questions other than those about your connections with others may be reported by demographic category (i.e., field of study, employment status), country, or cohort year. The only identifying information used will be the demographic information collected in Section I of the survey.
- As this evaluation requires us to speak with a broad range of program alumnae, we may ask you to share contact information for the connections that you mention, in the cases where we do not already have updated or valid contact information for these parties. As with all other questions, you may skip or decline to answer any questions you are not comfortable answering.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.



- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the assent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*



Thank you for agreeing to complete the survey! The estimated time to complete the survey is 45 to 60 minutes. You may save your progress and return later to complete the survey, if needed. Please answer each question to the best of your ability.

### Section 1. Personal Information

44. First Name(s): \_\_\_\_\_ Last Name(s): \_\_\_\_\_
45. Home Country: (Drop-down list: Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen)
46. TechGirls Program Year: (Drop-down list – 2012-2019)
47. Have you attended university? No, still in high school (skip to Q6); no, finished high school but did not attend university (skip to Q6); yes, currently in university; yes, but no longer in university
48. What is/was your main field of study in university (i.e. major)? \_\_\_\_\_
49. Are you currently working or have you recently worked (within the last two years) in a paid or volunteer capacity? Yes, in a paid capacity; yes, in a volunteer capacity; yes, in a paid and volunteer capacity; no, not working in a paid or volunteer capacity (skip to Q9)
50. If you are/were working or volunteering, is your work in a technology, science, or engineering field? Yes, no
51. Please describe your position \_\_\_\_\_

### Section 2. TechGirls Impact

52. Most impactful program component(s) – Please rank the components, with 1 being the MOST impactful and 7 being the LEAST impactful (drag and drop the items to re-order): tech camp, job shadow, community service, host family stay, follow-on project at home, cultural activity, interaction with international participants?
53. Please explain why components 1-3 were impactful
54. Please explain why components 5-7 were not impactful
55. What has been the most important outcome of the TechGirls experience for you personally?
56. What skills have you learned through your participation in the TechGirls program? (select all that apply) STEM, leadership, public speaking, networking, intercultural communication, other (please specify): \_\_\_\_\_
57. Have you been able to apply the skills you learned in the TechGirls program? Yes, no (skip to Q16)
58. Please describe how you have applied the skills you learned \_\_\_\_\_
59. Please describe what prevented you from applying the skills you learned \_\_\_\_\_
60. After participating in the TechGirls program, what was your level of interest in a career in technology, science, or engineering? Less interested than before the program, the same as before the program, more interested than before the program
61. How would you describe the change in your awareness about opportunities to work in technology, science, or engineering as a result of the TechGirls program? No change, slight change, moderate change, significant change



62. How would you describe the impact of the TechGirls program, if any, on your studies?

63. How would you describe the impact of the TechGirls program, if any, on your career or career plans? \_\_\_\_\_

64. What recommendations would you make to strengthen the program for future cohorts?

### Section 3. Networking (TechGirls Alumnae)

65. Since returning from your TechGirls program, have you maintained contact (through phone calls, text messages, emails, in-person meetings, etc.) with other TechGirls or TechGirls alumnae from other years? Yes, no (skip to Q26)

66. Please answer the following for each TechGirls alumna with whom you have had contact (Note: If you had contact with more than one TechGirls alumna, please write only one name here. You will be able to add information about additional TechGirls alumnae in the next section.):

Name	Home Country	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen	(DD/MM/YYYY if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague	Low Moderate High

67. Have you experienced any difficulty maintaining contact with other TechGirls alumnae since returning? No, no difficulty (skip to Q26); yes, moderate difficulty; yes, extreme difficulty

68. Please describe what has been difficult \_\_\_\_\_



### Networking (TechWomen Alumnae)

69. Since returning from your TechGirls program, have you had contact (through phone calls, text messages, emails, in-person meetings, etc.) with TechWomen alumnae? Yes, no (skip to Q30)
70. Please answer the following about your contact with the TechWomen alumna  
(Note: If you had contact with more than one TechWomen alumna, please write only one name here. You will be able to add information about additional TechWomen alumnae in the next section.)

Name	Home Country	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	Algeria, Cameroon, Egypt, Jordan, Kazakhstan, Kyrgyzstan, Kenya, Lebanon, Libya, Morocco, Nigeria, Pakistan, the Palestinian Territories, Rwanda, Sierra Leone, South Africa, Tajikistan, Turkmenistan, Tunisia, Uzbekistan, Yemen, Zimbabwe	(DD/MM/ YYY – if you do not recall the date please enter 01)	(DD/MM/ YYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague	Low Moderate High

71. Have you had contact with another TechWomen alumna? Yes, no (if yes, loop Q28 and 29 until respondent selects no; no, move to Q31)
72. Have you participated in any activities at TechWomen-TechGirls Clubs? Yes, no (skip to Q33)
73. What TechWomen-TechGirls Club activities have you participated in? (select all that apply) Summit/reunion meet up, tech training, networking event, other (please specify)
74. What recommendations would you make to strengthen the TechGirls and TechWomen networks? \_\_\_\_\_



### Networking (Mentors)

75. Are there other people in the technology, science, or engineering sectors in your country who have been mentors to you? Yes, no (skip to Q37)
76. Please answer the following about your contact with your mentor. (Note: If you had more than one mentor, please write only one name here. You will be able to add information about additional mentors below.)

Name	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	(DD/MM/YYYY – if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague Professor/Teacher Family Member	Low Moderate High

77. Have you had another mentor? Yes/no (if yes, loop Q34 and Q35 until respondent selects no; no, move to Q37)

### Networking (Program Staff)

78. Since returning from your TechGirls program, have you had contact (through phone calls, text messages, emails, etc.) with program staff, such as Tech Camp staff or group/trip leaders? Yes, no (skip to Q39)
79. Please answer the following about your contact with the program staff  
(Note: If you had contact with more than one program staff member, please write only one name here. You will be able to add information about additional program staff in the next section.)

Name	Start Date of Contact	End Date of Contact	Frequency of contact	Brief description of relationship (select all that apply)	Relative Importance of the relationship
	(DD/MM/YYYY – if you do not recall the date please enter 01)	(DD/MM/YYYY - if ongoing please leave blank)	Daily, Weekly, Biweekly, Monthly, Quarterly, Annually, Only once or twice	Mentor Friend Colleague Professor/Teacher	Low Moderate High





80. Have you had contact with other program staff? Yes/no (if yes, loop Q37 and Q38 until respondent selects no; no, move to Q39)

**Networking (Job Shadow Host)**

- 81. Did you participate in a job shadow day as part of your TechGirls program? Yes, no (skip to Q43)
- 82. Have you remained in contact with your job shadow host from your TechGirls program? Yes, no (skip to Q42)
- 83. How frequently are you in contact? Daily, weekly, biweekly, monthly, quarterly, annually (skip to Q43)
- 84. Did you attempt to maintain contact? Yes, no

**Networking (Host Family)**

- 85. Did you participate in a host family stay as part of your TechGirls program? Yes, no (skip to end)
- 86. Have you remained in contact with your host family from your TechGirls program? Yes, no (skip to Q46)
- 87. How frequently are you in contact? Daily, weekly, biweekly, monthly, quarterly, annually (skip to end)
- 88. Did you attempt to maintain contact? Yes, no

**You have completed the TechGirls Alumna survey. Thank you for your assistance!**



## Community Stakeholder Key Informant Interview

### TechGirls Evaluation: Community Stakeholder Recruitment Script

Hello, my name is [state name]. I am contacting you because [state name(s) of TechGirl who referred him/her] suggested that you might be someone who could speak to about the [provide brief description] project that she did as part of the TechGirls Program. As you know, TechGirls is a four-week summer program sponsored by the U.S. Department of State to expose young women ages 15-17 with an interest in science, technology, engineering, and math (STEM) fields to an array of career options. The participants come from the United States, the Middle East, North Africa, and Central Asia. As a stakeholder in [state name(s) of TechGirl]'s project, you have unique insight into an important aspect of the TechGirls program. Would you be willing to participate in a 15-20-minute interview to help us understand the impact of the project?

[If yes, schedule interview. If no, thank the individual and end the call.]



## TechGirls Evaluation: Community Stakeholder KII

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. TechGirls is a four-week summer program to expose young women ages 15-17 with an interest in science, technology, engineering, and math (STEM) fields to an array of career options. The participants come from the United States, the Middle East, North Africa, and Central Asia. When they return home, they each design and implement a voluntary STEM-related project in their local community. As you know, *[insert name of TechGirl(s) who referred him/her]* suggested we speak with you about her project and its impact.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. Reported information will be aggregated, and statements made will not be attributed at an individual level, but at a role level (for example, community stakeholder). You may choose not to answer any question, and you may choose to end the interview at any time. Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? *[Answer any questions that are asked.]* Do you consent to participate in this evaluation? *[If no, thank the respondent and end the interview. If yes, continue with script.]*

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please don't hesitate to ask for clarification if a question is unclear to you.

### Please Complete Prior to Interview

First Name:	Last Name:
Institution:	Position:
Date of interview:	Sex of Respondent (M/F/O):

Time Started: \_\_\_\_\_

To start, I'd like to ask you how you know *[insert name of TechGirls participant(s)]* and how you became aware of her *[provide brief description]* project.

1. Can you tell us a little about the project that *[insert name of TechGirls participant(s)]* undertook? *[Probe on what service was provided, target audience, and how many people participated.]* (EQ 1.1)
2. What barriers, if any, did *[insert name(s) of TechGirls participant(s)]* face as they tried to organize this project? *[Probe on lack of tech resources, lack of interest, lack of support,*



*time constraints, other commitments such as school exams.] (EQ 4.1)*

3. What impact, if any, did the activity have on the participants in the local community?  
[*Probe on increased interest in computers or STEM, increased awareness of STEM occupations.*] (EQ 1.1)
4. What impact, if any, did completing that activity on [*insert name(s) of TechGirls participant(s)*]? [*Probe on increased self-confidence, increased motivation, increased recognition in community, etc.*] (EQ 1.1)
5. What barriers, if any, do young women face in pursuing studies in STEM fields? (EQ 4.1)
6. What barriers, if any, do women face when they try to enter careers in STEM fields in this country? (EQ 4.1)
7. What approaches might be effective, in your opinion, to reduce the barriers to girls and women who want to study or work in STEM fields? (EQ 4.1)

**Thank you for your assistance!**

Time Ended: \_\_\_\_\_



## Host Family Key Informant Interview

### TechGirls Evaluation: Host Family Key Informant Interview (KII)

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the impact of the program to date and to provide suggestions for strengthening the program in the future. As a host for the TechGirls, you have unique insights into the management of program activities and impact of the program. The evaluation will be used to make informed decisions about future program efforts.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. You may choose not to answer any question, and you may choose to end the interview at any time. If you choose to complete the interview, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses. However, the raw data from this survey, including personally identifying information, will be held in confidence by the evaluation team and will not be shared with anyone else.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? *[Answer any questions that are asked.]* Do you consent to participate in this evaluation? *[If no, thank the respondent and end the interview. If yes, continue with script.]*

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please don't hesitate to ask for clarification if a question is unclear to you.



**Please Complete Prior to Interview**

First Name:	Last Name:
Date of interview:	Sex of Respondent (M/F/O):

Time Started: \_\_\_\_\_

To start, I'd like to hear a bit about your experience with TechGirls.

8. How did you first come into contact with TechGirls and in which years were you a Host Family for the program? [*Check relevant boxes below.*]

2012		2016	
2013		2017	
2014		2018	
2015		2019	

9. In your view, what is the value of the host family weekend? (EQ 1)

10. Have you maintained contact with the TechGirls you hosted since they returned home? (EQ 2.1)

Yes	No (skip to Q7)
-----	--------------------

11. If yes, please select all the alumnae with whom you have had contact. [*Show the respondent the list of participants s/he hosted and record the ones selected in the first column on the table below Q5.*] (EQ 2.1)





12. For each TechGirl alumna with whom you have had contact, please answer the following: (EQ 2.1)

[illegible]

13. What has been the primary focus of the ongoing contacts you have had with the TechGirls?  
[*Probe on maintaining ties, advice on education, career advice, advice on travel to the U.S., other.*] (EQ 2.1)

Finally, we would like to explore the TechGirls alumnae's trajectories a bit.

14. Based on your experience, what, if any, has been the impact of the program on the TechGirls? [*Probe on knowledge, attitudes, personal development*] (EQ 1.1)
15. To the best of your knowledge, how has the TechGirls program impacted the educational and professional trajectories of TechGirls alumnae? (EQ 1.2)
16. To the best of your knowledge, to what extent has the interaction specifically with Americans influenced the educational and professional trajectory of TechGirls alumnae? (EQ 2)
17. What, if any, has been the impact of the TechGirls program on you and your family? [open-ended]
18. What recommendations would you make to strengthen the program for future cohorts? (If none, leave blank) [open-ended]

**Thank you for your assistance!**

Time Ended: \_\_\_\_\_



## Host Family Survey

### TechGirls Evaluation: Host Family Survey

#### [Consent Statement – Online Administration]

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder in the program, your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 16 questions and should take no more than 10 to 15 minutes to complete.

Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By clicking the “Consent and enter survey” button below, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

#### Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.



**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Please answer the questions to the best of your ability and use the comment boxes to provide fuller answers and more insight on your experiences with TechGirls. Thank you in advance for your time and input!

### CONSENT TO PARTICIPATE

By clicking the button to enter the survey below, you are giving your consent to participate in this evaluation. If you do not wish to participate, please click the exit survey link below.

Consent and Enter Survey ☐

Refuse and Exit Survey ☐

---

Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.

**[Consent Statement – Administered by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]



Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder in the program, your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 16 questions and should take no more than 10 to 15 minutes to complete.

Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*



## Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*

Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.





## Section 1. Personal Information

89. Name:

90. What year(s) have you hosted TechGirls? (select all that apply) 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

## Section 2. Ongoing Contact

91. Have you maintained contact with the TechGirls you hosted since they returned home?  
Yes, no (skip to Q13)

92. Please enter the name of a TechGirls alumna with whom you have had contact.

(Note: If you had contact with more than one TechGirls alumna, please write only one name here. You will be able to add information about additional TechGirls alumnae in the next section.).

For the alumna with whom you have had contact, please answer the following:

93. Home Country (Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen)

94. Start Date of Contact (month and year)

95. End Date of Contact [if on-going, please leave blank] (month and year)

8. Frequency of Contact? daily, weekly, biweekly, monthly, quarterly, annually

9. Have you had difficulty maintaining contact? no, no difficulty (skip to question 10; yes, moderate difficulty; yes, extreme difficulty

10. Why has maintaining contact been difficult? \_\_\_\_\_

11. How would you describe the primary focus of your contact with the TechGirls? (e.g., simply maintaining contact, providing advice on education in the US, providing advice on travel or relocation to the US, providing career advice, etc.)  
\_\_\_\_\_

## Section 3. TechGirls Impact

12. . Based on your experience, what, if any, has been the impact of the program on the TechGirls?  
\_\_\_\_\_

13. What, if any, has been the impact of the TechGirls program on you and your family?  
\_\_\_\_\_

## Section 4. Recommendations

14. Would you be interested in hosting again in the future? Yes (skip to Q17) / no

15. Why would you not be interested in hosting again? \_\_\_\_\_



16. What recommendations would you make to strengthen the program for future cohorts? (If none, leave blank) \_\_\_\_\_

**You have completed the TechGirls Host Family survey. Thank you for your assistance!**

## Implementing Partner Key Informant Interview

### TechGirls Evaluation: Implementing Partner (IP) Key Informant Interview (KII)

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the Bureau of Educational and Cultural Affairs' TechGirls program to assess the impact of the program to date and to provide suggestions for strengthening the program in the future. As a core member of the program management team, you have unique insights into the management of program activities and long-term impact of the program. The evaluation will be used to make informed decisions about future program efforts.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. Reported information will be aggregated, and statements made will not be attributed at an individual level, but at a role level (for example, TechGirls program manager). You may choose not to answer any question, and you may choose to end the interview at any time. Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? *[Answer any questions that are asked.]* Do you consent to participate in this evaluation? *[If no, thank the respondent and end the interview. If yes, continue with script.]*

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please do not hesitate to ask for clarification if a question is unclear to you.

#### Please Complete Prior to Interview

First Name:	Last Name:
Institution:	Position:
Date of interview:	Sex of Respondent (M/F/O):

**Time Started:** \_\_\_\_\_

***[Note to Interviewer: Some modules below may not be relevant to the interviewee's role within the project. Prior to the interview, or at the beginning of the interview, inquire about the role of the respondent and determine which modules are most relevant to her/him.]***

To start, I'd like to hear a bit about your experience with TechGirls.

1. Please tell me about your role with TechGirls. *[Probe on specific activities, duration of*



*experience, and ongoing contact with alumnae.]*

Thank you, that is very helpful for framing our conversation today. I would like to focus the next part of our discussion on the impacts of TechGirls.

2. Can you share with us what you think has been the biggest change in the participants of the TechGirls program? [*Probe on changes in knowledge, changes in attitudes, changes in behaviors.*] (EQ 1.1)
3. What are some of the other changes, if any, that you have seen in the participants? (EQ 1.1)
4. What, in your opinion, are the key program elements that are most impactful for the participants? [*Probe on how the program elements contribute to the impacts cited.*] (EQ 1)
5. What have been some of the main challenges that alumnae have faced when they return home in implementing projects or pursuing their tech interests? [*Probe on lack of support from families or school administrators, cultural considerations, home country government obstacles, academic demands on time, baccalauréat exams, etc.*] (EQ 4)

Of course, one expectation of the program is that the alumnae will remain in contact with other TechGirls and with the people they met through the program and build their networks with other women in STEM fields.

6. To what extent do the alumnae remain in contact with each other? [*Probe on maintaining contact with others in their country, in other countries, and in the U.S. for 2015 and later cohorts. Probe on how they capture information on this.*] (EQ 3, EQ 2.1)
7. To what extent are alumnae receiving support from the TechGirls alumnae network? [*Probe on types of support – financial, exchange of resources, mentorship, etc.*] (EQ 3.1)
8. To what extent do the alumnae remain in contact with their job shadow and site visit hosts? [*Probe on purpose, forms, and frequency of communication.*] (EQ 2.1)
9. To what extent do the alumnae remain in contact with their host families? [*Probe on purpose, forms, and frequency of communication.*] (EQ 2.1)
10. To what extent do the TechGirl alumnae have the opportunity to connect with TechWomen alumnae? [*Probe on prior to 2019 and now. Probe on differences by country.*] (EQ 3)
11. To what extent are TechWomen alumnae serving as mentors to TechGirls alumnae following their return home? (EQ 3.2)



12. What barriers, if any, have TechGirls faced in trying to reach out to other TechGirls, TechWomen, or other mentors? [*Probe on differences by country and over time.*] (EQ 4, EQ 4.1)

Finally, we would like to explore the TechGirls alumnae's trajectories a bit.

13. In your opinion, what has been the impact of the TechGirls program on the educational and professional trajectories of TechGirls alumnae? (EQ 1.2)
14. To what extent has the interaction specifically with Americans influenced the educational and professional trajectory of TechGirls alumnae? [*Probe on tech camp personnel, job shadow hosts, host families, U.S. TechGirls alumnae for later cohorts.*] (EQ 2)

Thank you, that is very helpful. We have one final question for you.

15. What recommendations would you make to strengthen the impact of the program and improve the strength and durability of the networks that alumnae build when they complete the program?

**Time Ended:** \_\_\_\_\_



## Job Shadow Host Key Informant Interview

### TechGirls Evaluation: Job Shadow Host KII

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the impact of the program to date and to provide suggestions for strengthening the program in the future. As a job shadow host, you have unique insights into the management of program activities and impact of the program. The evaluation will be used to make informed decisions about future program efforts.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. You may choose not to answer any question, and you may choose to end the interview at any time. If you choose to complete the interview, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses. However, the raw data from this survey, including personally identifying information, will be held in confidence by the evaluation team and will not be shared with anyone else.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? [*Answer any questions that are asked.*] Do you consent to participate in this evaluation? [*If no, thank the respondent and end the interview. If yes, continue with script.*]

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please don't hesitate to ask for clarification if a question is unclear to you.



**Please Complete Prior to Interview**

First Name:	Last Name:
Institution:	Position:
Date of interview:	Sex of Respondent (M/F/O):

Time Started: \_\_\_\_\_

To start, I'd like to hear a bit about your experience with TechGirls.

19. How did you first come into contact with TechGirls?

20. In which years were you a Job Shadow Host for the program? [*Check relevant boxes below.*]

2012		2016	
2013		2017	
2014		2018	
2015		2019	

21. In your view, what is the value of the job shadow component of the program? (Probe: for the TechGirl? For you? For the organization?) (EQ 1)

22. Have you maintained contact with the TechGirls you hosted since they returned home? (EQ 2.1)

Yes (skip to Q6)	No
------------------	----

23. have you not maintained contact with the young women you hosted?



24. Please select all the alumnae with whom you have had contact. [*Show the respondent the list of participants s/he hosted and record the ones selected in the first column on the table below Q5.*] (EQ 2.1)

25. For each TechGirl alumna with whom you have had contact, please answer the following:  
(EQ 2.1)

ID of TechGirl (Use ID number from list of TechGirls hosted)	Start Date of Contact (MM/YY)	End Date of Contact (MM/YY)	Frequency of contact (Daily (01), Weekly (02), Biweekly (03), Monthly (04), Quarterly (05), Annually (06))	Brief description of relationship (select all that apply: Mentor (01), Friend (02), Other (03) - explain)	Difficulty of maintaining contact (No difficulty (01), moderate difficulty (02), extreme difficulty (03))	Reason for difficulty of maintaining contact (Open-ended)

Finally, we would like to explore the TechGirls alumnae's trajectories a bit.

26. Based on your experience, what, if any, has been the impact of the program on the TechGirls at a personal level? [*Probe on knowledge, attitudes, personal development*] (EQ 1.1)

27. To the best of your knowledge, how has the TechGirls program impacted the educational and professional trajectories of TechGirls alumnae, if at all? (EQ 1.2)





28. To what extent has the interaction specifically with Americans influenced the educational and professional trajectory of TechGirls alumnae? (EQ 2)

29. What, if any, has been the impact of the TechGirls program on you/the organization?

Lastly,

30. What recommendations would you make to strengthen the program for future cohorts? (If none, leave blank)

**Thank you for your assistance!**

Time Ended: \_\_\_\_\_



## Job Shadow Host Survey

### TechGirls Evaluation: Job Shadow Host Survey

#### [Consent Statement – Online Administration]

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder of the program your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 17 questions and should take no more than 10 to 15 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By clicking the “Consent and enter survey” button below, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

#### Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government



Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Please answer the questions to the best of your ability and use the comment boxes to provide fuller answers and more insight on your experiences with TechGirls. Thank you in advance for your time and input!

### CONSENT TO PARTICIPATE

By clicking the button to enter the survey below, you are giving your consent to participate in this evaluation. If you do not wish to participate, please click the exit survey link below.

Consent and Enter Survey ☐

Refuse and Exit Survey

---

Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.



**[Consent Statement – Administered by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder of the program your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 17 questions and should take no more than 10 to 15 minutes to complete.

**Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are consenting to the following terms:**

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).



Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*

*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*



Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.

### Section 1. Personal Information

1. Name:
2. Company/Organization Name:
3. What year(s) have you hosted TechGirls? (select all that apply) 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

### Section 2. Ongoing Contact

4. Have you maintained contact with the TechGirls you hosted since they returned home? Yes (skip to Q5), no
5. Why not? \_\_\_\_\_ (skip to Q12)
6. Please enter the name of a TechGirls alumna with whom you have had contact.  
(Note: If you had contact with more than one TechGirls alumna, please write only one name here. You will be able to add information about additional TechGirls alumnae in the next section.).

For the alumna with whom you have had contact, please answer the following:

7. Home Country (Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen)
8. Start Date of Contact (month and year)
9. End Date of Contact [if on-going, please leave blank] (month and year)
10. Frequency of Contact? daily, weekly, biweekly, monthly, quarterly, annually
11. Have you had difficulty maintaining contact? no, no difficulty (skip to question 11); yes, moderate difficulty; yes, extreme difficulty
12. Why has maintaining contact been difficult? \_\_\_\_\_

### Section 3. TechGirls Impact

13. Based on your experience, what, if any, has been the impact of the program on the TechGirls? \_\_\_\_\_
14. What, if any, has been the impact of the TechGirls program on you/the organization?  
\_\_\_\_\_

### Section 4. Recommendations

15. Would you consider hosting TechGirls again in the future? Yes (skip to Q16) /no
16. If no, why would you not consider hosting again? \_\_\_\_\_
17. What recommendations would you make to strengthen the program for future cohorts? (If none, leave blank) \_\_\_\_\_



**You have completed the TechGirls Job Shadow Host survey. Thank you for your assistance!**





## Program Staff Survey

### TechGirls Evaluation: Program Staff Survey

#### [Consent Statement – Online Administration]

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder of the program your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 15 questions and should take no more than 10 to 15 minutes to complete.

Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By clicking the “Consent and enter survey” button below, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

#### Privacy Act Statement

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government



Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Please answer the questions to the best of your ability and use the comment boxes to provide fuller answers and more insight on your experiences with TechGirls. Thank you in advance for your time and input!

### CONSENT TO PARTICIPATE

By clicking the button to enter the survey below, you are giving your consent to participate in this evaluation. If you do not wish to participate, please click the exit survey link below.

Consent and Enter Survey ☐

Refuse and Exit Survey ☐

---

Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.



**[Consent Statement – Administered by Phone/Web-based Communication Platform]**

[Researcher to read consent statement below]

Thank you for taking time to speak with me today. My name is \_\_\_\_\_, and I am a researcher on the TechGirls evaluation. Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program to assess the effectiveness of program interventions to date and to strengthen future program interventions. As a stakeholder of the program your unique perspectives will assist us in understanding the impact of TechGirls. The evaluation will be used to make informed decisions about future programming efforts. The survey contains 15 questions and should take no more than 10 to 15 minutes to complete.

Please note that your participation in this survey is voluntary, and you are free to end the survey at any time. By agreeing to participate in the evaluation, you are consenting to the following terms:

- Your participation in this evaluation is voluntary. We do not anticipate that participating in this evaluation will result in any risks or direct benefit to you. However, your inputs may lead to recommendations that benefit the TechGirls program—and, thereby, the general public. You may skip any questions you are not comfortable answering.
- The information that you provide in the survey will be used to write a report. This report will be shared with the U.S. Department of State and other stakeholders for comment and will eventually be made public. Any responses you provide may be reported in the final report as part of the anonymized aggregated quantitative analysis or the de-identified qualitative analysis from open-ended responses.
- The U.S. government and its contractors will take reasonable measures to protect privacy data, personally identifiable information, and other sensitive data obtained from the survey.
- Data about your post-program connections with TechGirls will be used to generate maps of the linkages within and across countries.
- The data you provide may be reanalyzed at a later date for a follow-up study or other purpose as approved by the U.S. Department of State. The data may be made available to third parties as required by law.
- You may withdraw your consent at any time by contacting [ECAEvaluation@state.gov](mailto:ECAEvaluation@state.gov).

If you have any questions about this survey or the TechGirls evaluation more broadly, you can contact the Dexis evaluation team at [TechGirlsEvaluation@dexisonline.com](mailto:TechGirlsEvaluation@dexisonline.com).

Do you have any questions about this survey or the TechGirls evaluation more broadly?

*[If the respondent asks questions, answer them.]*



*[If the respondent asks a question concerning privacy, the voluntary nature of their participation, or use of the data, read the below.]*

We have another statement that may help answer your questions. *[Read the Privacy Act statement.]*

### **Privacy Act Statement**

**AUTHORITY:** The information on this form is requested under the authority of 22 U.S.C. 2451 et seq (Mutual Educational and Cultural Exchange Act of 1961), P.L. 103-62 (Government Performance and Results Act of 1993), and P.L. 111-352 (Government Performance and Results Modernization Act of 2010).

**PURPOSE:** The purpose of gathering this information is to track the networks and relationships built as a result of participation in the TechGirls program.

**ROUTINE USES:** The information on this form may be shared with members of Congress, and the Office of Management and Budget (OMB). De-identified data files may be shared (without Personally Identifiable Information such as names or contact information) with ECA implementing partners and external researchers who are assisting ECA in measuring its impact. More information on the Routine Uses for the system can be found in the System of Records Notice State-08, Educational and Cultural Exchange Program Records.

**DISCLOSURE:** Responding to this survey is voluntary. The answers you provide on the survey will have no bearing on your participation in future program activities or any future applications you may submit for U.S. State Department programs.

Do you consent to participate in this evaluation?

*[If the respondent says yes, record the consent in the online survey and proceed with question 1. If the respondent says no, thank the respondent and end the call.]*



Thank you for agreeing to complete the survey! The estimated time to complete the survey is 10 to 15 minutes. Please answer each question to the best of your ability.

### Section 1. Personal Information

1. Name:
2. Role in TechGirls Program:
3. What year(s) have you been involved with TechGirls? (select all that apply) 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

### Section 2. Ongoing Contact

4. Have you maintained contact with the TechGirls you worked with since they returned home? Yes (skip to Q5), no
5. Why not? \_\_\_\_\_ (skip to Q12)
6. Please enter the name of a TechGirls alumna with whom you have had contact.

(Note: If you had contact with more than one TechGirls alumna, please write only one name here. You will be able to add information about additional TechGirls alumnae in the next section.).

For the alumna with whom you have had contact, please answer the following:

7. Home Country (Algeria, Egypt, Jordan, Lebanon, Libya, Morocco, Palestinian Territories, Tunisia, United States, Yemen)
8. Start Date of Contact (day/month/year)
9. End Date of Contact [if on-going, please leave blank] (day/month/year)
10. Frequency of Contact? daily, weekly, biweekly, monthly, quarterly, annually, only once or twice
11. Have you had difficulty maintaining contact? no, no difficulty (skip to Q12); yes, moderate difficulty; yes, extreme difficulty
12. Why has maintaining contact been difficult? \_\_\_\_\_

### Section 3. TechGirls Impact

13. Based on your experience, what, if any, has been the impact of the TechGirls program on the youth participants?  
\_\_\_\_\_
14. What, if any, has been the impact of the TechGirls program on you?  
\_\_\_\_\_

### Section 4. Recommendations

15. What recommendations would you make to strengthen the program for future cohorts? (If none, leave blank) \_\_\_\_\_



**You have completed the TechGirls Program Staff survey. Thank you for your assistance!**



## STEM Expert Key Informant Interview

### TechGirls Evaluation: STEM Expert Recruitment Script

Hello, my name is [state name]. I am contacting you because I am seeking a small number of experts who would be willing to take 20-25 minutes to speak with me about the state of science, technology, engineering, and math (STEM) sectors in our country as context for an evaluation of the U.S. Department of State's TechGirls program. TechGirls is a four-week summer program to expose young women ages 15-17 with an interest in science, technology, engineering, and math (STEM) fields to an array of career options. I am particularly interested to learn about areas of growth, areas of contraction, and the STEM labor force in our country to help me frame suggestions for strengthening the program in the future. Would you be willing to participate in a 20-25 minute interview scheduled at your convenience?

[If yes, schedule interview. If no, thank the individual and end the call.]





## TechGirls Evaluation: STEM Expert KII

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. TechGirls is a four-week summer program to expose young women ages 15-17 with an interest in science, technology, engineering, and math (STEM) fields to an array of career options. The participants come from the United States, the Middle East, North Africa, and Central Asia. Each country has its own strengths and challenges in the tech sector, and a better understanding of the situation here will help us frame suggestions for strengthening the program in the future.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. Reported information will be aggregated, and statements made will not be attributed at an individual level, but at a role level (for example, national STEM expert). You may choose not to answer any question, and you may choose to end the interview at any time. Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? *[Answer any questions that are asked.]* Do you consent to participate in this evaluation? *[If no, thank the respondent and end the interview. If yes, continue with script.]*

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please don't hesitate to ask for clarification if a question is unclear to you.

### Please Complete Prior to Interview

First Name:	Last Name:
Institution:	Position:
Date of interview:	Sex of Respondent (M/F/O):

**Time Started:** \_\_\_\_\_

To start, I'd like to ask you,

1. What are the STEM sectors that provide job opportunities in the country? (EQ 4.1)
2. Which STEM sectors are growing and might offer expanding opportunities? *[Probe on computer and mathematical occupations, engineering occupations, and life, physical, and social science occupations.]* (EQ 4.1)



3. Are there STEM sectors that are contracting? If yes, which one(s)? [*Probe on computer and mathematical occupations, engineering occupations, and life, physical, and social science occupations.*] (EQ 4.1)
4. To what extent is the educational system, and higher education in particular, aligned with the needs of STEM sector employers and entrepreneurs? [*Probe on industry engagement in curriculum development, systems of internships and apprenticeships, and opportunities for entrepreneurship.*] (EQ 4.1)
5. What are the strongest opportunities for women in STEM-related higher education programs in this country? How do these compare to the opportunities available for men? (EQ 4.1)
6. What barriers, if any, do young women face in pursuing studies in STEM fields? (EQ 4.1)
7. What barriers, if any, do women face when they try to enter careers in STEM fields in this country? (EQ 4.1)
8. What approaches might be effective, in your opinion, to reduce the barriers for girls and women who want to study or work in STEM fields? (EQ 4.1)

**Thank you for your assistance!**

Time Ended: \_\_\_\_\_



## US Embassy Post Key Informant Interview

### TechGirls Evaluation: U.S. Embassy (Post) Recruitment Script

*Assumption: ECA will identify appropriate respondents and will provide an introduction. If travel is permitted, we will ask to conduct KIIs in Tunisia, Algeria, and Jordan. The text below will be altered to indicate the week of planned travel to the country. If that week is not a feasible option, we will schedule by phone as shown below.*

*[We will send scheduling emails to the other Posts (and those 3 if travel is not permitted) that say the following]*

Dear \_\_\_\_\_,

Thank you very much for your willingness to participate in the TechGirls evaluation. We would like to schedule a call with you (on the phone or web-based communication platform of your choice) at your convenience between October 5 and October 30. We are available to conduct the interview Monday – Friday between 7 a.m. and 12 p.m. Washington, DC time. Please let us know what date and time would be most convenient for you. We expect that the interview will take approximately 30-40 minutes.

Best regards, and thank you in advance for your assistance,

[Signature block]



## **TechGirls Evaluation: U.S. Embassy (Post) Key Informant Interview (KII)**

Dexis, an independent third-party evaluation firm, has been contracted by the U.S. Department of State to conduct an evaluation of the TechGirls program. As you know, TechGirls is a four-week summer program to expose young women ages 15-17 with an interest in science, technology, engineering, and math (STEM) fields to an array of career options. U.S. Embassies have played a significant role in TechGirls over time, from the selection of participants and provision of escorts for travel to support for their networking activities upon their return. We would like to understand better the experience of this Post with the TechGirls program, as well as any lessons learned that strengthen future iterations of the program.

The information you share with us will be treated as confidential. The transcript and notes from this interview will not be shared with any other organization. Reported information will be aggregated, and statements made will not be attributed at an individual level, but at a role level (for example, U.S. Embassy personnel). You may choose not to answer any question, and you may choose to end the interview at any time. Do you have any questions for me about the evaluation, its purpose or use, or how we will handle the information you share with us today? *[Answer any questions that are asked.]* Do you consent to participate in this evaluation? *[If no, thank the respondent and end the interview. If yes, continue with script.]*

We greatly appreciate your cooperation and time. Thank you for answering each question to the best of your ability, and please don't hesitate to ask for clarification if a question is unclear to you.

### **Please Complete Prior to Interview**

First Name:	Last Name:
Embassy	Position:
Date of interview:	Sex of Respondent (M/F/O):

**Time Started:** \_\_\_\_\_

To start, I'd like to hear a bit about your experience with TechGirls.

1. Please tell me about your role with TechGirls. *[Probe on selection, travel supervision, support for networking, support for alumnae activities (TechGirls specific and ECA-wide), and personal ongoing contact with TechGirls.]*



2. And to help us better understand the local context, as best you know, what barriers, if any, do young women in this country face in pursuing studies and careers in STEM fields? (EQ 4.1)

Thank you, that is very helpful for framing our conversation today. I would like to focus the next part of our discussion on the impacts of TechGirls.

3. Can you share with us what changes at the personal level you have observed in the participants of the TechGirls program upon their return? [*Probe on changes in knowledge, changes in attitudes, changes in behaviors from the time they select them to the alumnae activities on return.*] (EQ 1.1)
4. What, in your opinion, are the key program elements that are most impactful for the participants? [*Probe on selection criteria, pre-departure orientation (expectation management), on-program support, engagement in projects and alumnae activities on their return.*] (EQ 1)

Of course, one expectation of the program is that the alumnae will remain in contact with other TechGirls, with the people they met through the program and build their networks with other women in STEM fields.

5. How would you describe the network of TechGirls alumnae in this country? [*Probe on establishing and maintaining contact across cohorts.*] (EQ 3)
6. To the best of your knowledge, what purpose does the network serve for its members? [*Probe on any supports they provide to each other and how connected the alumnae are/network is to Post.*] (EQ 3)



7. To what extent do the TechGirl alumnae have the opportunity to connect with TechWomen alumnae? [*Probe on prior to 2019 and now and extent of mentorship.*] (EQ 3)
  
8. What barriers, if any, have TechGirls faced in trying to establish networks with other TechGirls, TechWomen, or other mentors? [*Probe on differences over time.*] (EQ 4, EQ 4.1)

Finally, we would like to explore the TechGirls alumnae's trajectories a bit.

9. In your opinion, what has been the impact of the TechGirls program on the educational and professional trajectories of TechGirls alumnae? (EQ 1.2)

Thank you, that is very helpful. We have one final question for you.

10. What recommendations would you make to strengthen the impact of the program?
  
11. What recommendations would you make to improve the strength and durability of the networks that alumnae build when they complete the program?

**Thank you for your assistance!**

**Time Ended:** \_\_\_\_\_



Evaluation Division  
BUREAU OF EDUCATIONAL AND CULTURAL AFFAIRS