NEEDS BASED ASSESSMENT OF WOMEN IN THE STEM SECTOR

20 years yes

A **GENDER-BASED ANALYSIS** OF **PRIMARY OPPORTUNITIES** AND **BARRIERS**

W(I)MEN
IN THE STEM SECTOR

APRIL, 2016 | PREPARED BY JACK JEDWAB

With thanks to the YES Advisory Committee for their contribution to the project:

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1. Introduction

Gender-based analysis (hereafter GBA) is defined by Status of Women Canada "a method for examining how an issue is affected by sex, gender, and other intersecting identity factors. It involves examining disaggregated data, as well as social, economic, and cultural conditions and norms." (GBA: Gender-Based Analysis Plus, SWC 2015). The goal of this project is to conduct a gender-based analysis of the barriers and opportunities faced by women in the Science, Technology, Engineering and Math sector (hereafter STEM), notably when it comes to advancement in their careers. GBA uses sex and gender as entry points to examining an issue, while situating these factors across various identities and experiences. In this report, we focus on the STEM sector, a highly educated group of women from diverse backgrounds, in the Montreal area. We examine this group in relationship to the broader community, as well as focusing on differences across this group, namely in terms of experience within the field.

Our focus is on four key indicators:

1. Number of participants and stakeholders indicating that they can identify the opportunities and barriers women face in accessing professional and business opportunities and advancing within STEM

2. Participants/stakeholders' ability to identify these opportunities and barriers women face in accessing professional and business opportunities and advancing within STEM

3. Number of factors identified contributing to the opportunities and barriers women face in accessing professional and business opportunities and advancing within STEM

4. Nature of factors identified contributing to the opportunities and barriers women face in accessing professional and business opportunities and advancing within STEM

2. Data and Methods

The data collection process was iterative, in so far as each stage helped in structuring the following, with steps for feedback at various points through the process from Youth Employment Services as well as the YES Advisory Committee.

In the initial stage, the research consultants completed the GBA: Gender Based Analysis Plus course available from Status of Women Canada (*http://www.swc-cfc.gc.ca/gba-acs/course-cours/eng/mod00/mod00_01_01.php*). We also met with the Advisory Committee for the project to gather insights and direction in terms of issues facing women in the STEM sector. Finally, we consulted relevant literature and did an overview of measurement tools available. This initial phase led to three stages of data collection, which we will describe briefly here. In the following section, we then describe the results of each of these data collection efforts with respect to the four indicators.

Secondary Data: National Household Survey, Statistics Canada 2011.

The National Household Survey (NHS) was distributed to approximately 4.5 million households in Canada as part of the Canadian Census in 2011. The response rate was 68.6%, and provides information about the social and economic characteristics of the Canadian population.[1] Our analysis is limited to respondents based in Montreal. Along with gender, we examine employment status, field of study, and immigration status. The NHS analysis provides us with an overview of the population of interest for our study, and allows us to get an initial measure of gender inequalities in STEM fields in Montreal.

The results of this analysis were presented to the Advisory Committee on Sept. 24, 2015 for feedback and the discussion.

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[1] Statistics Canada, National Household Survey User Guide 2011.
http://www12.statcan.gc.ca/nhs-enm/2011/ref/nhs-enm_guide/index-eng.cfm

Primary Data: Survey Data

A Léger Marketing Survey was commissioned by Jedwab LJS (2015-11-09). The survey was drawn on a representative sample of 547 working adults in the province of Quebec. It included 309 men and 238 women, of which 39% held university degrees and 43% were employed in professional fields. The goal of this step was to provide Quebec-wide benchmarks on which to compare men and women in areas that, based on research and discussions with the Advisory Committee, could present specific or unique barriers to women working in the STEM sector.

This included question batteries constructed based on existing survey measures of job satisfaction and perceptions of the work environment. An open-ended question was also included asking about barriers and opportunities in the workplace, as well as a section on experiences with mentorship. (See Appendix A for questionnaire). Along with breakdowns by gender, we focus on university-degree holders and those reporting working in male-dominated companies, as proxies for the types of environments in the STEM sector, a highly educated and male-dominated sector.[2]

The Léger Survey results were presented to the Advisory Committee on Dec. 1, 2015 for feedback and the discussion.

In addition, we attempted to capture a parallel, non-random sample of women working in the STEM sector to complete the questionnaire fielded in the Léger Marketing Survey. The questionnaire was reconstructed on google docs. The online questionnaire was then distributed by the YES Advisory Committee among their network. The questionnaire was in the field from Nov. 24, 2015 to Dec. 16, 2015, and 33 responses were received in total, with 27 women and 6 men.

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[2] While a STEM-specific subsample would have been ideal, it was cost-prohibitive.

Stakeholder Interviews and Focus Groups

The final step involved collecting qualitative data from stakeholders in the STEM sector. This data was collected through two focus groups and a series of eight telephone interviews. The two focus groups were divided by years of experience in the field. The first focus group included nine women who were more junior, defined by the researchers as having worked in the STEM sector for 10 or less years. The second group included 10 more senior women with 10 or more years of experience.[3] The focus groups were conducted in English, and the majority of participants had English as their first language.[4] Specific characteristics of the participants (names, company worked for) have been removed to ensure confidentiality. The focus groups lasted 2 hours.

The interviews were conducted by telephone and lasted approximately 20-30 minutes and involved senior staff in the human resources departments of eight STEM-sector companies with offices in Montreal.

Both the focus group and telephone interviews were recorded. The guides for the focus groups and interviews are available in the Appendix. The audio files were provided to a third-party hired by the research consultants for transcription, before being analysed.

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[3] Science, Engineering and Technology were equally present across both focus groups. We were not able to recruit someone from Math for the junior focus group.

[4] In the junior focus group, one participant provided responses in French.

3. National Household Survey, 2011

As observed below, the data from the 2011 National Household Survey (NHS) reveals that women occupied some 48% of the work force in Montreal. When broken down by fields of study, persons with STEM degrees occupied 15% of the workforce. Of the employed STEM degree holders, women constituted nearly one in four persons in Montreal (that does not imply that they are employed in STEM occupations). The table below reveals that the share of women holding degrees in engineering is especially low at about one out of seven individuals. In the field of mathematics and computer science, just over one in four employed degree holders are women. While not in the majority it is in the Science (45.6%) and Technology (39.2%) fields of study where women are more likely to hold degrees.

Table 3.1. Gender Breakdown in STEM Sector

Montreal	Total	Male	Female	% Female
Employed Total - Major field of study 2011	**1 598 600**	**826 785**	**771 820**	**48.3**
No postsecondary	*425 735*	*234 780*	*190 955*	*44.8*
STEM fields of study	*238 660*	*180 115*	*58 545*	*24.5*
Science	49 835	27 130	22 710	45.6
Technology, except engineering technology	5 710	3 470	2 240	39.2
Engineering and engineering technology	116 755	100 485	16 265	13.9
Mathematics and computer sciences	66 360	49 025	17 335	26.1
Other fields of study (Non-STEM)	*934 205*	*411 890*	*522 315*	*55.9*

Source: Statistics Canada, National Household Survey, 2011

Immigrants constitute an important share of female STEM degree holders in Montreal, representing more than one-third of the group. As observed below, at approximately 47%, it is in the field of engineering that immigrants are most strongly represented amongst female STEM degree holders.

Table 3.2: Gender and Immigrant Breakdown in STEM Sector

Montreal Employed	Total Female	Non-immigrants	Immigrants	% Immigrants
Total - Major field of study 2011, STEM groupings	**771 820**	**584 400**	**17 8275**	**23.1**
No postsecondary	*190 955*	*147 540*	*41 915*	*22*
STEM fields of study	*58 550*	*35 195*	*21 885*	*37.4*
Science	22 710	14 440	7 680	33.8
Technology, except engineering technology	2 240	1 615	605	27
Engineering and engineering technology	16 265	8 095	7 665	47.1
Mathematics and computer sciences	17 335	11 045	5 930	34.9
Other fields of study (Non-STEM)	*522 315*	*401 670*	*114 485*	*21.9*

Source: Statistics Canada, National Household Survey, 2011

This suggests that overall, women with STEM educations in the labour force tend to be underrepresented compared to women in the workforce more generally. Also, as measured by immigrant status, the STEM group is more diverse than is the broader labour force.

4. Survey Data

In the second stage of data analysis, we focus on the types of barriers and opportunities working women face, especially in professional, male-dominated environments more generally, as well as in STEM specifically.

Léger Marketing Survey

The representative data collected through Léger Marketing makes clear that those employed tend to be very satisfied, with 81% of men and 84% of women saying they are satisfied with their job. The story generally in this data is quite positive.

- 90% of women and 85% of men agree that their "past work experience and/or job skills are useful in my present job"
- 63% of women and 65% of men agree that "my place of employment offers good opportunities for family life"
- 65% of women and 58% of men agree that their "specific area of education and training were essential to my current job"
- 55% of men and 58% of women have, over the past 12 months, "had training to improve my job skills, either at my workplace or somewhere else"
- 95% of women and 88% of men agree that "they get along well with colleagues at their place of work"
- 58% of women and 55% of men agree that "I network (build a social network to achieve goals) effectively at my place of work"

As can be seen in the Table 4.1, there were few gender-based differences in people's assessment of their workplace environment and the ways in which their backgrounds related to their current job.   The table presents averages on a scale from 1 (agree strongly) to 4 (disagree strongly) based on gender, as well as among men and women who have university-degrees, and among men and women working in male-dominated environments. Approximately three in four

Table 4.1: Perceptions of the Workplace Among Working Adults in Quebec by Gender

		Full Sample	University Only	Male Workplace
My specific area of education and training were essential to my current job	Men	2.17	2.00	2.31
	Women	2.17	2.11	2.31
My past work experience and/or job skills are useful in my present job	Men	1.72	1.73	1.69
	Women	1.63	1.63	1.50
My place of employment offers good opportunities for family life	Men	2.23	2.06	2.36
	Women	2.14	1.95	2.21
I network (build a social network to achieve goals) effectively at my place of work	Men	2.38	2.24	2.39
	Women	2.46	2.35	2.23
I get along well with colleagues at my place of work	Men	1.63	1.65	1.68
	Women	1.55	1.48 (p<.15)	1.58
I can achieve my career goals at my current place of employment	Men	2.27	2.20	2.28
	Women	2.28	2.27	2.21
I am satisfied with my job	Men	1.95	1.96	1.88
	Women	1.92	1.99	1.90
Over the past 12 months, I have had training to improve my job skills, either at my workplace or somewhere else	Men	2.58	2.43	2.60
	Women	2.49	2.46	2.44
I face barriers at work because of my gender	Men	3.56	3.46	3.58
	Women	3.49	3.53	3.08 (p<.05)
I have experienced sexual harassment at my place of work	Men	3.78	3.70	3.75
	Women	3.78	3.73	3.52

Note: 1=Strongly Agree, 4=Strongly Disagree. Data presented are the means.
Source: Léger Marketing Survey 2015 Commissioned by Jedwab.

women work in female-dominated environments, where only one in two men work in male-dominated environments.

We should note two statistically significant differences. First, among university graduates, women are slightly more likely to agree that they get along with their colleagues. This finding is only borderline significant, and it is not found among workers more generally, or among those working in male-dominated environments. The more interesting finding is that women are more likely than men to report facing barriers at work because of their gender when they work in male-dominated environments.

This translates to approximately 11% of men and 17% of women who say they face barriers at work because of their gender. One in five women between the ages of 25 and 34 reported facing barriers at work because of their gender. This finding is in contrast to relatively few women reporting experiencing sexual harassment at their place of work.

Understanding what these barriers are is a key goal of this study. On that front, the open-ended question about the barriers and opportunities that women faced is enlightening. Table 4.2 provides an overview of the types of issues mentioned, recoded into broad categories.

It should be noted that 54% of respondents did not respond to the question, and non-response was more likely among men (57%) than women (49%). All responses focused on barriers and no respondents mentioned specific opportunities. This suggests a tendency of men to be less likely to see barriers than women. This is also reproduced among those who responded to the question, where men were less likely to specifically note no barriers (16.5%) compared to women (18%).

Table 4.2: Barriers and Opportunities

	Total	Men	Women
No barriers	17%	16.5%	18%
Insufficient level of schooling	11.5%	9%	14%
No advancement opportunities in my workplace / the small size of the company	9.5%	7%	12%
No salary increase	5.5%	2%	10%
Gender discrimination (being a women, being a man, unspecified)	3.5%	2%	8%
Lack of seniority	2.5%	0%	6%

Note: Responses for the 46% of respondents who provided a response to the question.
Source, Léger Marketing Survey 2015 Commissioned by Jedwab.

When we examine the barriers, the most common response relates to individual characteristics, such as insufficient level of schooling or skills (11.5%), followed by workplace features, such as the lack of advancement opportunities (9.5%) or salary increases (5.5%). Gender discrimination was only mentioned by 3.5% of respondents, but this number was substantially higher among women (8%) than men (2%). Women also noted that their lack of relative seniority (6%) presented a barrier to them, whereas no men mentioned this item.

The survey also focused on one specific opportunity in the workplace, namely mentorship. We found that mentorship, defined as "someone who offers his/her expertise and knowledge in order to promote the development of another person," was somewhat common in the full sample, especially among women. As Table 4.3 indicates, 70% of men and 61% of women report having no mentors.

Table 4.3: Mentorship Among Workers in Quebec by Gender

Number of Mentors		
	Male	Female
0	70%	61%
1	15%	19%
2	8%	11%
3	3%	5%
4	2%	2%
5 or more	2%	2%

Source, Léger Marketing Survey 2015 Commissioned by Jedwab.

For those who do have mentors, however, the experience appears to be very rewarding, particularly among women, as can be seen in Table 4.4.   The most common response is that mentors are available and help build confidence, and to a lesser extent provide constructive feedback, help network, and works with the respondent to establish career goals. Women were more likely to note that mentors were available and helped with networking effectively.

Table 4.4: Rewards of Mentorship by Gender

My mentor often and sometimes...	Total	Men	Women
...is available to me when I need support	89%	84%	94%
...builds my confidence at work	82%	77%	86%
...provides me with constructive feedback about my performance at work	74%	69%	78%
...helps me network effectively	62%	52%	70%
...works with me to establish career goals	58%	56%	60%

Source, Léger Marketing Survey 2015 Commissioned by Jedwab.

In general, the sample of workers in Quebec points to fairly positive assessments of the work experience. Barriers to advancement that are felt more strongly by women are a mix between personal characteristics and company environment.   Gender discrimination and sexual

harassment are noted only by a small percentage of the sample, though it is disproportionately women.

Convenience Sample among Women Working in STEM

The convenience sample of women working in STEM allows us to contrast these Quebec-wide benchmarks to our population of interest. We succeeded in contacting 33 women and men working in STEM. The sample is a convenience sample, so is not representative of people working in the STEM sector. Yet, it gives us interesting insights among a group of stakeholders that is directly comparable to our Quebec-wide sample.

Firstly, who was represented in the sample? As we noted previously, 82% were women. Most were in the 30-39 age group (49%) with the other respondents spread across the age range and 36% reported having at least one child. Most of the respondents were in Technology (42%) and Science (27%).

Because the sample size is very small, and we only have a few male respondents, it is difficult to draw on real distinctions between male and female respondents, though we present this information in Table 4.5 for comparison purposes. What should be noted, however, is that the responses, as in the general population sample, tend to be quite positive (i.e. closer to 1 than 4). In other words, the general perceptions of workplace satisfaction, as well as perceptions of opportunities and barriers appear not drastically different from the general sample, especially when we look at women in male-dominated workplaces.

Table 4.5. Perceptions of the Workplace among STEM Sample by Gender

	Total	Male	Female
My specific area of education and training were essential to my current job.	2.0	2.0	2.0
My past work experience and/or job skills are useful in my present job.	1.4	1.0	1.5
My place of employment offers good opportunities for family life.	1.8	2.2	1.8
I network (build a social network to achieve goals) effectively at my place of work.	1.8	1.3	2.0
I get along well with colleagues at my place of work.	1.4	1.3	1.4
I can achieve my career goals at my current place of employment.	2.2	2.0	2.2
I am satisfied with my job.	2.1	2.0	2.1
Over the past 12 months, I have had training to improve my job skills, either at my workplace or somewhere else.	2.0	2.5	1.9
I face barriers at work because of my gender.	2.9	3.7	2.8
I have experienced sexual harassment at my place of work.	3.5	3.7	3.5
Sample Size	*33*	*6*	*27*

Note: 1=Strongly Agree, 4=Strongly Disagree. Data presented are the means.
Source: Convenience STEM Sample, 2015.

What is perhaps most interesting from this survey are the open-ended responses. Unlike the general survey where opportunities and barriers were asked in a simple open-ended question, in the convenience sample we were able to divide them into two separate questions. Given the limited number of respondents, we can provide the full list of them here for the female respondents (Table 4.6). They have been edited for length when possible. 15 of the 27 women

mentioned at least one barrier, and many mention more than one. There are 16 women that mentioned opportunities.

Table 4.6. Barriers and Opportunities among Women working in STEM

Barriers	Opportunities
Small organization, not a lot of opportunity to advance in terms of seniority of position, limited budget is also a factor	A lot of scope to get involved in new projects, varied tasks
Out of work, but at other jobs strongly discouraged from improving myself. Seen favoritism where others are rewarded for doing virtually nothing, and I don't get the same rewards even though I have worked harder	I've been through a few restructurings and during those times, we were encouraged to apply for new jobs within the merged entity
	I take it upon myself to seek out and recognize an opportunity whenever and wherever possible
Feeling my contributions are undervalued and more heavily scrutinised compared to male peers. My gender was highlighted as an interpersonal difference during a 20-person meeting in which I was the only female attendee. Language in French-dominated workplaces	I have been able to speak at an international conference about my game and experiences, and attending these conferences provide an opportunity to learn/improve skills. Many local events allow my network to grow
Lack of managerial support	
Headquarters based in a different country so difficult to communicate with decision makers	Allowed to take on new responsibilities
	Taking initiative when areas needed help provided me with opportunities to advance
	I receive guidance with regards to areas for improvement and ways in which I can advance/enhance skills
Salaries are quite low compared to average salaries for the same role. Additionally, type of work is limiting - as a writer not much client contact. Hard to apply skillset if looking for further advancement	Lots of skill building/training in useful applications
Training and organizational culture	Increase of projects and use of capacity already installed
I'm not part of a boy's club and even though I proved myself in my job, it's harder for a female to get to the next level in my current position	I just came back from a medical leave and asked for an evaluation plan. I'm waiting to be fully back to see if it's going to follow-up
Not enough opportunities shown/provided	By performing well and provide training/certification on certain subject
Specific expertise	
Not taken as seriously as men. It seems that women have to become 'super-male' to be assertive	Given one project to manage, represent in international situations, and be primary contact

	I have a supportive boss who has put me in touch with various opportunities
	Internal and external training to improve job skills
Lack of positions at a higher level	
I applied to a conference given at my work but my topic was not chosen for a conference. Learned that last year, there were no female presenters at the conference and that even though many of us submitted this year, none were chosen. Although we can argue in favour of merit for the topics chosen, I realise that the all-male committee who picks those topics might also have something to do with it. Lack of women in decision-making roles.	Advancement possible through self-initiative. Expecting that you will get what you deserve or be compensated for your hard work alone doesn't get you by in the STEM industries. In my company, we are less than 12% women. I find opportunities arise when I initiate projects on my own…These initiatives gave me visibility on a team where I often feel I have none.
Even though peers and seniors have been supporting me in my efforts to learn new skills, HR has completely blocked my efforts. I have also experienced sustained bullying from the day I started working, by the person who is not technically my boss but she now has decision power over the projects I will be working on.	
Negative performance reviews with no indication of why. Told that my work should go before my baby daughter, even though it was my partner who took all 8 months of parental leave and we alternated picking her up from the daycare (which closes at 17h). He also said that I should just figure something out when she's sick, despite having explained lack of family living in area. This negative review had a big impact on any future possibilities for advancement.	Mentorship, there is a good system in place for people to learn new skills under mentorship.

Source: Convenience STEM Sample, 2015.

In stark contrast to the general population sample, only one respondent mentioned lack of skills on her part as a barrier to advancement. All the other responses focus specifically on external barriers within the work environment. While some of these are general barriers to training and advancement, it is important to note that a substantial number of these barriers have a gendered component, such as being evaluated differently (and more negatively) compared to male peers, lack of access to male-dominated networks as well as negative consequences related to work-life balance.

A second difference from the general sample, that is likely due to the question design, is that we received almost equal numbers of opportunities as barriers. Along with receiving support in various forms, it is noteworthy that a number of women mention their own self-initiative, such as "I take it upon myself to seek out and recognise an opportunity whenever and wherever possible" and "I find opportunities arise when I initiate projects on my own… These initiatives gave me visibility on a team where I often feel I have none."

Only one participant mentioned mentorship as a specific opportunity for her, while two others mentioned a supportive boss or guidance from others. This is interesting when we contrast it with the fact that about 40% (11/27) of the women reported having at least one mentor, as they do in the general population sample, and report similarly positive experiences overall. It is also interesting to note that only one of the six men report having had a mentor. In terms of mentorship or mentee training, four out of the six men reported having participated in some sort of training, versus 11 out of 27 women. While the sample is too small to make generalizations from the questions about the mentor relationship (listed in Table 4.4), the responses on these items tend to be overwhelmingly positive, suggesting that most women who have had a mentor reported receiving various forms of support either sometimes or often.

5. Stakeholders

The qualitative data collection occurred in February 2015 with a dynamic group of women across the STEM sector and occupying a range of positions, years of experience, and backgrounds. The data provides a wealth of information and insights into women's experiences in the STEM sector and helps identify some of the specific barriers and opportunities they've encountered. One of the observations from collecting this data is that stakeholders' perceptions of the barriers and opportunities are multiple and sometimes contradictory. In this section, we focus on the themes that tend to emerge across different groups of women.

Focus Groups

As mentioned, two focus groups were held with a group of junior women (<10 years experiences) and a more senior group of women (>10 years' experience). The women varied in terms of the STEM sector with which they were associated, as well as in regards to ethno cultural background[5] and to a lesser extent language.[6] Within the focus groups, however, no mention was made of the unique challenges that women from ethno cultural minorities faced, nor was language mentioned as a barrier. This contrasts with the general population survey and the convenience sample discussed in section 4.

Barriers to Retention and Advancement

The two focus groups highlighted the challenges companies face in retaining highly qualified women in the STEM sector. It was clearly the case that a number of women in the junior group felt like they had reached as far as they could go within their organization to advance beyond their purely technical skills to positions of leadership. Several of the women in this group had

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[5] Three junior women and one senior woman were from visible minority communities.
[6] Each focus group had one clearly Francophone participant, though many were completely bilingual so native language was not evident.

either left or were contemplating leaving a STEM employer to seek advancement opportunities elsewhere in terms of salary or job title, because they felt like they had gone as far as they could within the company. One woman in the senior group noted that "It's hard because women want to work in this company and this field, but women are not being treated equally and so they are going out and forming their own companies."

Several of the participants noted that they thought men were more likely to "jump ship" than women, and that their male colleagues often applied for promotions and other jobs even when they were not qualified, whereas women were less likely to do so. As one computer programmer in the junior group recalled, "We [women] put too much stock in job descriptions because half of the time, I look at the job descriptions of my former jobs and I don't even do half of it. Men bypass this and for them, it's a power thing." Another woman noted that it was only after a friend had seen a posting and suggested she apply that she considered it, because when she looked at the job description, she would never have applied. She said, "Maybe no one should read job postings and just go for it." Others had actually had trouble advancing when they went up for promotions, and felt that they had few alternatives than to look elsewhere.

The same dynamic was also observed in the more senior group, where at various points over the course of their careers, some considered a move or starting up their own companies as a better path to advancement. One participant mentioned that she feels there is "unfulfilled potential" where she is currently working which is why she is considering leaving. Another left her first company after being told explicitly by her CEO that they would never pay a female programmer X amount because they thought they could not work as well as their male counterparts. This sentiment was felt less strongly among other participants, especially those who were in companies that had a greater presence of women, or who had effective professional development programs in place.

It was clear that women who held high level leadership positions were quite satisfied because they were responsible for making decisions. One participant mentioned that she is happy now

because she is the president of the company where she works, but that as she went through her career, it "was a fight at every level." This was echoed by another senior woman who now runs her own company. She points out, that in her industry, finding and training women needs to be seen as a priority and suggests a need for greater emphasis upon the value of having more women involved in an organization. This was strongly supported by several participants who echoed the fact that outcomes differ between teams that incorporate women and those with only men. One woman in the gaming industry noted that women created fundamentally different products that had value for their companies.

Barriers to Attraction

In each focus group, there was at least one participant who was unemployed. These women often provided a starkly different perspective on the issues facing women in STEM, and particularly the challenge of securing paid employment. While many other women spoke about obstacles to promotion, these women in particular spoke about the challenges of getting their "foot in the door" of their chosen field, and noted that being a woman made it harder for them to sell themselves. For both the junior and senior participants, this meant looking for, or taking jobs, that lacked the technical skills for which they had received training. For these women in particular, having more senior mentors within their field was seen as a way to network: to discover new opportunities and also have an advocate within the field to circulate their name.

A Generational Divide

One of the clearest differences between the junior and senior focus groups was the types of barriers that participants had faced in their careers. Senior women often spoke about being the first woman in their companies or teams, and often faced explicit bias when being considered for promotion. Overt sexism was experienced where they had been paid less than their male counterparts because it was assumed they had a spouse at home. One high level CEO recalled, "I was paid 30% less than men the entire way through my career with Fortune 500 companies

until I stated my own company." One even noted that previously her company did not offer life insurance to women because it was assumed that only the primary breadwinner required it. Another participant said that throughout her career, she'd had to become more masculine in how she thinks and acts in order to be taken seriously. Another woman in the senior group explained, "I feel like I need to work 300% harder than the men, who get promoted a lot faster than I do."

By contrast, junior women often did not identify many barriers to achieving their current position. The types of experiences they found most challenging were frequently subtle expectations and unspoken bias, whereas several of the participants did not see their gender affecting them at all in their career. The reaction from several participants is that women often lack the confidence or skills to negotiate promotions, and several of the women mentioned the tenets of the book *Lean In* as being how they approached advancing their careers. The focus of mastering softs skills and self-promotion was an important aspect of the discussion. "I haven't really faced the same challenges as other women in this group," explained one young woman. "I am more naturally outspoken, and I was always told to go for it and not be shy."

In contrast, with the overt sexism and explicit discrimination the senior women described at various points throughout their career, junior women spoke more of sexism coming from both clients, outside of the immediate working group, as well as within their companies. One respondent called this "ordinary sexism", and as an example referred to male colleagues excusing themselves when they swore in front of a woman. Several noted that colleagues expect them to be sympathetic and provide emotional support. As one noted, "You have to deal with everyone's agony. They come and talk to you and not their direct supervisor… Just because I am female doesn't mean I want to hear about your daughter's troubles." Another wondered if the fact that she was not social made her good at technology, but was holding her back from reaching leadership positions: "All the things that got you your success all of a sudden seems to prevent you from going further."

It should be noted that while many junior women felt that they had achieved some degree of success in their current positions, many felt that they had reached a ceiling and that the switch from a technical to leadership role seemed out of reach because they did not possess the management skills sought by their superiors. "I like to see opportunities as vertical and horizontal. I have had lots of opportunities to get lots of experience at my level, but I haven't had many opportunities for managerial or leadership skills... Men are better equipped for these vertical opportunities," said one participant.

Another generational divide across the focus groups concerned work-life balance. During the focus group with senior women, they talked about challenges associated with raising children. One women in electrical engineering noted, "What strikes me most is the difference between what I lived and my daughter who is now doing her masters at [university] in civil engineering... there are a lot of women in her program and she feels like she belongs there." In contrast, she noted that she is and has always been the only women. "When I started at the naval academy as an electrical engineer," she notes, "it was alien to have me, and no one knew what to do with me. But now it's normal." The junior group, in contrast, did not bring this issue up when asked about specific barriers they faced. When the issue was raised explicitly by the moderator, most of the participants did not really see it as much of a barrier today given that parental leave is well established in the province.

There was a clear divide in perceptions between the two groups. One senior person pointed out explicitly that hiring women means the risk of them taking maternity leave and costing the company money because they must cover some of the cost. A younger participant pointed out that more and more men are taking paternity leave, so parental leave within the organization has taken on less of a gendered meaning. This divide was not universal. One junior woman did mention that she had received comments against hiring her because she would have children, but the reaction from the other women in the groups' was quite strong, referring to this at "straight up sexism". At another point during the junior focus group, a woman mentioned that she had been told that "when women get promoted, the start-up loses a lot when women go on

maternity leave." It was presented as a "huge problem" to the point where start-ups go under. Again, the reaction of other women was strong, stating that such an opinion was "bullshit…women give them a heads up and if they solely rely on that one person for a year, then it's bad management." So while junior women do sometimes face discrimination based on perceived likelihood of taking maternity leave, the reaction in the junior group was one of surprise, whereas the more senior group talked about such a bias being almost normalized.

Finally, the composition of the work force has clearly been undergoing a transformation in the STEM sector. While most of the participants from both focus groups were in male-dominated workplaces, there was variation in how underrepresented women were across companies, and there were some participants working in female dominated or gender balanced workplaces. This was clearly not the experience for the majority of women in the senior group who throughout their careers were often the only woman on their team or in a given position within their companies.

Opportunities to Advancement

Similar to the STEM convenience sample, the focus groups echoed the idea that self-initiative led to many opportunities within their careers and that they are rewarded when they put themselves out there and take on new projects. There were clearly many who thought that when women ask for things and show initiative, they are rewarded similarly to men. As one of the younger participants noted, "In order to get opportunities, part of it is showing passion and interest in whatever aspect." Another woman in gaming said, "My opportunities are endless. I read the book *Lean In* and what I took away I applied to working toward my next job, not the job I have right now." In the same vein, another woman who worked at a large aviation firm similarly mentioned that she is "not only working her job right now, but her personal brand." So while barriers were felt, similar to the STEM convenience sample open-ended responses, opportunities were often associated with self-initiative.

In both focus groups there was optimism among some of the participants that now all opportunities are open to women, though many mentioned that these opportunities required sacrifices, either in family life or in terms of time. Yet multiple participants noted that they were capable of leading change in their organizations, by acquiring leadership positions, changing organizational culture, starting their own networks of female mentorship, and by working with younger women to get them interested in the STEM sector.

There were also multiple mentions of the importance of having supportive superiors and people in positions of leadership. Many participants in both focus groups spoke about how they'd had 'sponsors' at various points in their careers encouraging them to put themselves up for promotions or helping them navigate processes towards career advancements. One woman who had changed from a career in architecture to games explained that she had two different mentors who taught her animation over the course of a year when they would meet every week. "Having two mentors helped because there were two points of view, and no one truth." She said the experience pushed her to make the change. In the senior group, almost all 'sponsors' were male, whereas in the junior group they were more mixed.

Finally, time and again, networks were mentioned as being very important. "A lot of opportunities have been through networking and meeting the right people at the right time", said one participant. Another noted that she has been given opportunities through her male colleagues, and "sometimes forgets [her] gender and his." Networks were crucial for many of the women, either in seeking support to address problems, for shifting careers, or finding out about new opportunities within or outside the company.

The Importance of Mentorship

When participants were asked about mentorship specifically, at some point, nearly all had benefitted from a formal or informal mentor. The few who didn't have a mentor were often

those who were underemployed or unemployed. It should be noted that many participants had been both mentees and mentors.

The experiences with informal mentoring were often mentee-led, where women had sought out senior people within their company or their field for advice which led to ongoing relationships. One of the key aspects of informal mentoring was that the mentor-mentee relationship was characterised by both respect and mutual liking. Those who had been mentors reiterated how important liking the mentee was in sustaining the relationship. Others noted that formal mentorship programs also tend to be mentee-led: "The burden is on the mentee to reach out and set the schedule and pull the mentor in."

Those who had participated in formal mentoring tended to fall into one of two categories: those who had a formal mentoring program within their company, versus those who accessed mentors through an external field-specific network. In terms of the former, such programs usually involved pairing a junior and senior person within the company who met at regular intervals for short chats, either in person or virtually, to discuss specific challenges or issues. The latter usually involved an online network where mentees could search for mentors within their field and approach them for contact. Whereas internal mentors were seen as helpful in navigating an organization, several mentioned that mentors outside their field helped identify that they were unhappy and that moving on to new projects/careers/jobs could address challenges they were facing.

Similarly, to those who had informal mentors, there was a sense among participants that the most successful mentorship experiences involved two people who "clicked". Thus, participants were almost unanimous in noting that there had to be some sort of personal connection or affection between mentor and mentee to make it last and for it to be rewarding for both parties. As one woman in the senior group explained, "It's a natural connection most of the time that comes through trust." She notes that she has had one or two experienced with "planned"

mentors, they were not the most fruitful. Another noted that a mentorship relationship "grew organically and it needs to grow that way."

There was also a wide variety of experiences with both male and female mentors, and the participants views were mixed in terms of the importance of having female mentors. This was partly due to the variety of objectives for entering into a mentoring relationship. For career advancement within a company, the gender of the mentor was less important, whereas others found the support of female mentors was particularly helpful in navigating issues related to gender (glass ceilings, perceptions, self-promotion) as well as having motivating role-models.

In terms of limits to mentoring, the senior group noted that demands on them to be mentors were high, and this was echoed by some of the more experienced women in the junior group. They also noted that many of their mentors were almost exclusively men, while pointing out some tension among older, more established women mentoring women. One senior woman noted, "My mentors were men because they saw something in me to believe in and sometimes women feel other women shouldn't get what they didn't have access to… You should want people to be better than you and get higher, especially for women. You can't hold women back because you were held back."

Interviews with Human Resource Executives

Our interviews with eight human resources managers revealed that the larger, older STEM firms are more likely to have a higher ratio of male employees than the smaller, newer firms, notably on the science and technology side, that tend to have more female employees. In the larger more established firms, there were even fewer women in senior management. Representation of women in STEM firms (as distinct from STEM occupations) is often a reflection of the structure of the company and there appears to be a higher percentage of women in STEM firms that have more sales, marketing and administrative functions. Specific to the gaming sector, the presence of women in production functions is considerably lower in the larger firms. For

example one interviewee pointed out that software development tended to be all male while quality assurance was mostly female.

The larger firms interviewed for this report clearly acknowledge the imbalance in the ratio of men to women, but their assessment of the reasons for the disparities varied as did their recommendations on how it was best addressed.

Recruiting and Retention

The companies we interviewed reported diverse challenges in recruiting and retaining women. Some described the issue of recruitment as the principal challenge, with retention a seemingly much lesser concern. Representatives of the larger firms reported an important lack of female applicants, particularly in the field of engineering. Indeed, given the scarcity of female engineers, when it came to retention, the main concern was preventing other companies from luring them away. At the larger firms, there is a concern that the bright and sharp women do not stay since there is a perception that there are better opportunities elsewhere and that the younger, less experienced, high potential women obtain technical training and then leave for elsewhere

None of the HR managers interviewed suggested that there was discrimination against women in terms of advancement. Some suggested that if there were too few women in senior STEM positions it was because they lacked the networks and visibility. Representatives of the smaller start-up STEM firms suggested that gender was not an issue. Rather, their emphasis was on qualifications, fit, talent and skill. Some pointed out that there are more women starting out in the tech sector as reflected in approved internships that are generally at a 50/50 male to female ratio.

Some references were made to the issue of long hours in the STEM sector and the problems employees encounter in balancing family and work life. That challenge was described by some observers as personal rather than company-oriented.

Some interviewees suggested that despite opportunities for promotion there remained a risk of losing qualified women where the ability to support one's family is inadequate. Where a woman is a principal care-giver, long working hours could be regarded as a specific barrier. In the larger firms some women are concerned that maternity leave is an obstacle to advancement, though some noted that women generally take maternity leave and return. In start-ups, interviewees pointed to a concern that new mothers returning to the workforce might require significant adaptation due to growth and changes at the company in the interim.

HR managers from larger engineering firms felt that there was a need to encourage more women to enrol in relevant university programs. On some occasions there was outreach to high schools to highlight the opportunities for women in pursuing STEM occupations.

To comprehend the contemporary barriers facing women in the larger STEM firms it is important to look back at the evolution of the field. One HR manager pointed out that there was a big push in the 1980's and 1990's to improve representation of women in several fields. But uneven economic conditions often meant that the programs lacked funding. A greater contemporary focus of affirmative action and employment equity programs was on the multicultural composition of the firms rather than gender balance.

Today, despite the significant presence of women in the workforce, they remain underrepresented in management occupations in general and very much so in STEM occupations. At executive levels, social activities, 'perks' and rewards for success tend to be male oriented (i.e. hockey tickets) and hence the corporate culture at such levels can be a challenging area for women to navigate. At the management level in STEM occupations, particularly in the larger firms, some women feel less at ease to express themselves. It was suggested that some women face an intimidation factor in senior management, given the domination by men.

Company Initiatives

When it comes to recruiting women, the HR interviewees agreed that senior managers has positive attitudes around engaging prospective candidates, but they observed a gap between a welcoming message and the resources put in place to increase the presence of women and to support their advancement within the firms. This helps explain why company initiatives to support the advancement of women often arise from informal networks that are bottom up rather than from management. HR managers interviewed in the smaller start-up companies are less inclined to believe that such initiatives are necessary.

Mentorship Programs and Models

Most of the firms interviewed lack formal mentorship programs, however all attest to having some informal process in place to initiate new employees to the company and, at times, help them navigate the culture of the enterprise (some also used the term "politics" which newer employees needed assistance navigating). Although the term mentorship was not frequently invoked by the HR managers interviewed, they did reference role models, buddies, coaches and sponsors (sponsors were defined as persons that can provide advice and encouragement and help create a network).

In some instances, such support was attached to employee training programs or what was referred to as 'on-boarding'. In general, it appeared to be more closely associated with the entry period of the employee into the firm and did not continue much further. Often "bottom up", the informal process resulted in no official association with the human resources departments of the firms. Some HR managers saw this as having both advantages and disadvantages. On the one hand, some observers regarded the process as more 'natural' when it was informal as the 'mentee' gradually determined from which individual(s) they preferred to obtain guidance (they can change their buddy/sponsor depending on the specific skills where support is required). In the smaller STEM firms, the informal process engaged more experienced staff members with

assisting new employees by shadowing their work. To some degree this also helped manage issues and challenges as and when they arose.

Others felt that management buy-in would make for a more structured experience in career development and in helping employees navigate corporate structures and hierarchy. This was also more directed towards orienting those employees that sought advancement within the firm. Some also insisted that mentoring, the time and investment in attention that it requires, is taken more seriously when there is management buy-in.. In the more structured approach, goals are set and the potential mentee knows that their mentor is committed long-term. Goals are considered essential to the process and that should include 'time frames' and 'check-ins' which are not frequently part of the informal approach.

In the larger firms, it was contended that mentorship must be integrated into the company and supported with concrete methods and tools. For it to work effectively there must be tangible methods and identifiable returns as well as evaluation/assessment. It must also focus on both soft skills (i.e. the social and interpersonal) and hard skills (i.e. knowledge and technical expertise).

Below please find additional challenges that were identified in the HR interviews conducted.

- The lack of time to be a sponsor/mentor
- The turnover of personnel
- The absence of real-life role models of women that are relatable
- The perception that it may be more challenging, or less preferable, for men to mentor women
- The need to ensure chemistry and trust between the mentor and mentee
- The need to invest human and financial resources to ensure effective mentoring

6. Conclusions

The data reviewed here suggests the following conclusions.

- **High levels of job satisfaction, but barriers to advancement.** Women working in STEM seem to be passionate about what they do, and find the technical side of their work very rewarding. Many of the more junior women interviewed for this report, however, conveyed that breaking past their current levels into management positions was challenging.

- **Formal barriers are decreasing, yet gender discrimination still occurs.** Many of the women interviewed pointed to differences in soft skills and self-promotion, while others spoke of challenges related to having children. Others noted that senior colleagues took them less seriously, or that peers relied on them for more emotional or personal support then their male colleagues.

- **Important gap between HR and Employees.** Women working in the STEM sector often spoke very positively about their immediate (often male) peers and their immediate superiors. However, they felt that their gender-based concerns were not taken seriously by HR.

- **Mentorship is widespread, and overwhelmingly appreciated.** The vast majority of people interviewed for this project have had either informal or formal mentors and this relationship has taken many forms and impacted them positively

We see several points to considering in terms of addressing the needs of women in the STEM sector through mentorship, based on the data collected here.

- **Women in STEM secure various benefits based on the type of mentoring relationship**. Mentorship programs within a company were often seen as beneficial for career advancement within an organization, whereas external programs tended to have wider benefits that last longer than a specific job.

- **There is no one size fits all model when it comes to effective mentorship**. Formal, informal; internal vs. external; male vs. female: there were supporters for all forms and conditions of mentorship.

- **Successful mentorship initiatives need to be aware of the company goals and structure to be most effective.** This requires tailoring a program to the needs of a company, and recognizing that small and medium firms may have fewer resources to put toward a program than large corporations. Furthermore, corporate culture can determine whether top-down or bottom-up initiatives will be most successful.

- **Formal mentorship needs to be aware of the informal processes that are in place to support employees.** Mentorship programs can draw or build on these informal processes.

- **Company buy-in can be a challenge to mentorship.** It needs to be clear to the company's bottom line why retaining and attracting women is important and how mentorship can contribute to this.

  Successful mentorship is mentee-led, but requires a commitment from the mentor. While mentorship is often a mentee-led process, mentors, especially those in leadership roles and women that are underrepresented in an organizational structure, face many demands.

- **Successful mentorship often requires an interpersonal connection.** The intangible aspect of mentorship that often makes it successful is how two people connect that makes them enjoy speaking to each other.

Appendix A: Léger Marketing and STEM Convenience Sample Questionnaire

Q#1. Thinking about your current career, to what extent do you agree, or disagree with the following statements.

[STATEMENT LIST]

Label	Value	Attribute	Termination
My specific area of education and training were essential to my current job	1		
My past work experience and/or job skills are useful in my present job	2		
My place of employment offers good opportunities for family life	3		
I network (build a social network to achieve goals) effectively at my place of work	4		
I get along well with colleagues at my place of work	5		
I can achieve my career goals at my current place of employment	6		
I am satisfied with my job	7		
Over the past 12 months, I have had training to improve my job skills, either at my workplace or somewhere else	8		
I face barriers at work because of my gender	9		
I have experienced sexual harassment at my place of work	10		
There are more men than women in my place of work	11		

[RESPONSE LIST (Scale):]

Label	Value	Attribute	Termination
1-Strongly disagree	1		
2- Somewhat agree	2		
3- Somewhat disagree	3		
4- Strongly disagree	4		
I don't know	96		
I prefer not to answer	99		

Pure Open-End Question

[OPEN-END]
[PROGRAMMER NOTES:]
[VALIDATION:]

Q#2. Please identify ANY barriers or opportunities for advancement you've experienced at work.

RESPONDENT/INTERVIEWER INSTRUCTION:	*(PROBE FOR A SINGLE SPECIFIC ANSWER)*

Label	Value	Attribute	Termination
Please specify	96	O	
(DO NOT READ) I prefer not to answer	99		

Numeric Question

[BASE: ASK ALL]
[NUMERIC: RANGE= MIN X, MAX Y]
[DECIMALS: 0/1/2/etc.]
[SYMBOL TYPE: $/%/#/Other]
[SYMBOL LOCATION: Choose an item.]
[PROGRAMMER NOTES:]

Q#3. How many formal mentors do you currently have at your place of work? A mentor is someone who offers his/her expertise and knowledge in order to promote the development of another person.

RESPONDENT/INTERVIEWER INSTRUCTION:	*(READ LIST/DO NOT READ LIST. ONLY ONE MENTION POSSIBLE)*

Label	Value	Attribute	Termination
Enter number	000		
There is no mentor / role models at my place of work	097		
(DO NOT READ) I prefer not to answer	999		

Single Mention Question

[BASE: ASK ALL]
[SINGLE MENTION]
[LIST ORDER: Choose an item.]
[PROGRAMMER NOTES:]
[VALIDATION:]

Q#4. Have you ever participated in any formal or mentee training?
Write question wording here.

RESPONDENT/INTERVIEWER INSTRUCTION:	*(READ LIST/DO NOT READ LIST. ONLY ONE MENTION POSSIBLE)*

Label	Value	Attribute	Termination
Yes	1		
No	2		
I don't know	98	O/F	
(DO NOT READ) I prefer not to answer	99	F	

[BASE: ASK IF Q3 = 1 or more]
[SINGLE MENTION GRID]
[LIST ORDER: Randomized]
[STATEMENT LIST ORDER: Choose an item.]
[PROGRAMMER NOTES:]
[VALIDATION:]

Q#5. My mentor often, sometimes, rarely or never…

[STATEMENT LIST]

Label	Value	Attribute	Termination
…provides me with constructive feedback about my performance at work.	1		
…works with me to establish career goals.	2		
…builds my confidence at work	3		
…helps me network effectively	4		
…is available to me when I need support	5		

[RESPONSE LIST (Scale):]

Label	Value	Attribute	Termination
1-Often	1		
2- Sometimes	2		
3- Rarely	3		
4- Never	4		
I don't know	96		
I prefer not to answer	99		

Appendix B: Interview Guides for the Focus Group

Moderator's guide
January 2015

1) Introduction

Hello, my name is _____. I am working with YES on a project related to gender and mentoring in the STEM sector. We are interested in getting your views on this issue through this group discussion.

These discussions allow us to get more detail on topics and issues than we can from telephone surveys (thoughts, feelings and opinions).

We are not here to reach a consensus. There are no right or wrong answers - you help me by giving me your opinions, thoughts and ideas. It is important to respect the view of others in the room. It is also okay to have differences of opinion with each other.

This meeting will be recorded in order to help us write our report later. No-one outside of the project team will listen to the recordings. Everything discussed here will be kept in complete confidentiality - no names will be attached to the results in any way. Feel free to use your first name only during the discussion.

1. Round table introductions [5 minutes]
Start with moderator giving their name and their occupation (so we have a good understanding on the participants' occupations for the report).

> Follow-up: What is the male/female ratio in your company (who they work with, as well as company overall)

2. Warm up [15 minutes]
Next we would like you to tell us a bit about yourself. Can you tell me a bit about how you came to work in your current position?

> **Follow-up :**
> 1) Are you satisfied in your current position?
>
> 2) **[junior group]** Do you feel that your current position reflects your education and training
> **[senior group]** Do you feel that your current position reflects your past work experience? Do you believe you would have your current position without your STEM education and background?
>
> 3) Do you feel like there are opportunities for advancement at your company for you ?

3. Opportunities and Barriers [40 minutes]

We'd like to begin by discussing the opportunities and barriers that women face in accessing professional and business opportunities and advancing within their professions or enterprises

a) Barriers:
What do you think the most important barriers that women in STEM face in accessing professional and business opportunities and advancing within their professions or companies?

Follow-up: Are there other serious barriers?

Follow-up: Do you think men in your workplace face these same barriers or are they unique to women?

If not mentioned :
- Is sexual harassment a problem in your workplace?
- Is work/life balance a problem in your workplace?

b). Opportunities :
What do you think the greatest business or professional opportunities or opportunities for advancement for women in STEM?

Follow-up: What other opportunities are there for you in STEM fields?

Follow-up: Are there some opportunities that are more difficult to take advantage of as a women ?

c) Thinking of the various opportunities and barriers that you face, are there specific things your company does or can do to address them?

4. Mentoring [30 minutes]

Now we want to ask you about mentorship, a relationship where an experienced person (a mentor) shares his or her knowledge, expertise and experience with a less experienced person (a mentee) who is willing to learn and benefit from this exchange. It is typically a long-term relationship that focuses on a person's goals rather than coaching, which helps with specific, more technical responsibilities, tasks or issues.

Have you had a mentor?
> **YES** : If so, what was that experience like (who was your mentor (i.e. don't name them,

just what kind of a position were they in, were they in your organization or outside, a man or a woman, and how did they help you)?

1) How did the mentoring relationship work (formal, informal, etc.)

2) Was it helpful? In what ways? What did you get out of the relationship? How did it help you most?

3) Were there things you wanted out of the relationship that you did not get?

4) Were your mentee(s) male or female? Do you feel their gender effected how you were able to guide and advise them?

1) **NO**: For those who have not had a mentor, would you have found one useful? How do you believe a mentor could most help you?

2) What barriers could he or she help you address?

Have you ever been a mentor? Formally? Informally?

EVERYONE : What is the ideal mentor for you ?
   Make sure people address :
a) position
b) type of support and topics addressed.
c) gender,
d) frequency and type of contact (in-person, online, etc.)
e) within or from outside company

How does the fact that you are working in a STEM sector or have a STEM education influence your ideal mentor profile? Is there anything we should keep in mind in our recommendations about mentor relationships for women in STEM?

Does your company have a formal mentorship model already in place? If so, tell us about how it operates?
   - Do you feel your company would be open to introducing a formal mentorship initiative? Do you think such an initiative could be sustained?
   - Do you think it is important for women to have access to female mentors? Why?

What do you think are the biggest barriers to sustaining a mentorship relationship or initiative? (e.g. scheduling, commitment, work based deadlines interfere etc…)

5. Wrap-up [5 minute]

Any last comments you want to make?

Thank everyone for participation.

Appendix C: Interview Guides for the HR Interviews

Inteviewer's guide
January 2015

1) Introduction
Hello, my name is _____. As Leann explained in setting up the interview, I am working with YES on a project related to gender and mentoring in the STEM sector. We are interested in getting your views on this issue. Everything discussed here will be kept in complete confidentiality - no names will be attached to the results in any way, nor will your company be identified in the report that is produced.

1. About interviewee and their company:

Can you tell me a bit about what your company does and what your current role is in the company?

2. Gender : Opportunities and Barriers

What is the male/female ratio in your company?

Does your company face issues recruiting or keeping qualified women or is this not really an issue for your company?

In your experience, have female staff (or other women in your STEM network) faced specific barriers in advancing in their careers in STEM?

What are the opportunities for women to advance in your company (and in STEM more generally)?

3. Company initiatives

Does your company have any specific programs or initiatives in place or on the horizon that would help women advance in the company?
- Can you tell us about it?
- Were/Are there any challenges making this initiative a success?

4. Mentorship models

Now we would like to ask you more specifically about mentorship for women in STEM fields.

Does your company have any mentorship programs in place? (If yes, get details about who they focus on, how it is run)

Do you think mentorship programs can be helpful in the corporate environment?

Why/Why not?

More generally, what mentorship models might be feasible to introduce and sustain within the corporate environment?

What types of initiatives have seen work and not work well in the past?

Are there specific challenges from a corporate perspective for putting a mentorship model in place?

What are the advantages for a company to participate in a mentorship program, in your opinion?

5. Wrap-Up

Thank you very much for your time. It has been extremely helpful, and we really appreciate you participating. Is there any other comments that you would like to make before we conclude?

Thank you very much again.