



ANITA BORG INSTITUTE  
FOR WOMEN AND TECHNOLOGY

**2009 TECHNICAL EXECUTIVE FORUM**  
**THE RECRUITMENT, RETENTION, AND**  
**ADVANCEMENT OF TECHNICAL WOMEN:**  
**BREAKING BARRIERS TO CULTURAL CHANGE IN CORPORATIONS**



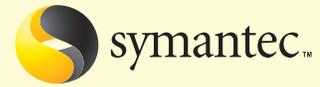
## About the Anita Borg Institute for Women and Technology

The Anita Borg Institute for Women and Technology (ABI) seeks to increase the impact of women on all aspects of technology and increase the positive impact of technology on the world's women. The Anita Borg Institute provides resources and programs to help industry, academia, and government recruit, retain, and advance women leaders in high-tech fields, resulting in higher levels of technological innovation. ABI is a not-for-profit 501(c) 3 charitable organization. ABI partners include: Google, HP, Microsoft, Cisco, First Republic Bank, IBM, Intel, Lockheed Martin, the National Science Foundation, NetApp, SAP, Sun Microsystems, Symantec, Thomson Reuters, Wilson Sonsini Goodrich & Rosati, Amazon, CA, Intuit, Facebook, Genentech, and Raytheon. For more information, visit [www.anitaborg.org](http://www.anitaborg.org).

## About the Technical Executive Forum

The ABI Technical Executive Forum, launched in 2007, brings together eminent technology thought leaders to raise awareness, actively engage discussion, and drive action on issues regarding the recruitment, retention, and advancement of technical women. The Technical Executive Forum is held annually at the Grace Hopper Celebration of Women in Computing and includes targeted discussions among technology executives, knowledge exchange, and practical solutions to creating cultures that sustain diversity and innovation.

## The 2009 Technical Executive Forum was Sponsored by:



## Organizing Committee, 2009 Technical Executive Forum:

Steve Bourne, Chief Technology Officer, El Dorado Ventures

Mark Bregman, Chief Technology Officer, Symantec Corporation

Nora Denzel, Senior Vice President and General Manager, Payroll, Intuit Corporation

Joanne Ono, Management Consultant

Brian Pawlowski, Chief Technology Officer, NetApp

Lucy Sanders, CEO and Co-founder, National Center for Women and IT

Caroline Simard, Vice President of Research and Executive Programs, Anita Borg Institute for Women and Technology

John White, CEO, Association for Computing Machinery

Telle Whitney, CEO and President, Anita Borg Institute for Women and Technology

## The Forum was facilitated by:

William Wulf, Professor, University of Virginia and former President, National Academy of Engineering

Maria Klawe, President, Harvey Mudd College

## Forum speakers included:

Nicholas Bowen, Vice President of Technology, IBM

Mark Bregman, Chief Technology Officer, Symantec

Alan Eustace, Senior Vice President of Engineering, Google

Rick Rashid, Senior Vice President, Research, Microsoft

Sophie Vandebroek, Chief Technology Officer, Xerox

## Reported by:

Caroline Simard, PhD, Vice President of Research and Executive Programs, Anita Borg Institute for Women and Technology



On October 1, 2009, 59 senior technology executives participated in the Anita Borg Institute's 2009 Technical Executive Forum, held at the Grace Hopper Celebration of Women in Computing. This initiative brings together thought leaders to raise awareness, actively engage discussion, and drive action among R&D executives on issues regarding the recruitment, retention, and advancement of technical women.

### **Companies and institutions represented at the Forum were:**

ACM  
Adobe  
Amazon.com  
Blackrock  
CA  
Cisco  
Facebook  
Goldman Sachs  
Google  
Harvey Mudd College  
HP

IBM  
Intel  
Intuit  
Lockheed Martin  
Microsoft  
National Security Agency  
NCWIT  
NetApp  
Openwave  
Purdue University  
SAIC

SAP  
Straterra Partners  
Sun Microsystems  
Symantec  
Thomson Reuters  
Thoughtworks  
University of Virginia  
US Navy  
Xerox

The discussion at the Forum focused on 3 components: 1) a review of issues pertaining to the culture of technology organizations that prevent the recruitment, retention, and advancement of technical women; 2) presentation of solutions that have effectively addressed these cultural challenges within organizations that can be replicated; 3) breakout sessions focused on specific ideas and actions.

## Cultural elements that prevent the creation of inclusive environments for maximum human capital engagement

Even though an acknowledgement was made that the pipeline of technical women with technical degrees coming out of academia was insufficient, the group commented that the women who do graduate from these programs are not joining organizational cultures that are as receptive as they could be to gender diversity. This cultural disconnect was highlighted through the discussion of five main components.

### 1. The existing technical culture is biased against “those who don’t code”

- Participants discussed the existence of an implicit hierarchy in many high-tech companies, whereby coding is viewed as higher status than other technical positions. The majority of positions that involve coding are held by men, and these positions are more valued than other roles by the prevailing culture. This cultural assumption sends a signal that diverse contributions and work styles aren’t equally valued by an organization.
- In many companies, technical women are more likely to be engaged in positions that involve large scale project or product management, acting as catalysts across multiple groups to drive organizational action. Participants found that there are more technical women in these positions than in individual contributor roles. Whether this is because organizations tend to put women in “non-coding” roles, whether coding roles are not welcoming to women, or whether women are more attracted to project management positions is not well understood. However, executives emphasized that the globalized, collaborative, and matrixed organizational structures of today’s companies have a critical need for positions and skills involving program management.

- This bias against those who contribute beyond coding also reinforces the perception that individual contribution trumps collaboration in organizations. While collaboration is a written core value of many top technology companies, the technical culture fails to reflect this value in many cases. In engineering cultures, recognition is largely driven by individual contributions, which is more easily measured by coding outcomes.
- Executives and managers need to rethink the importance of roles and recognize the contribution of a variety of skills. Organizations need to be better at measuring the value of a diversity of technical roles — *the nature of work has changed*. The prevailing attitude, characterized by “if you aren’t doing code, you’re not doing real work,” is limiting organizations’ ability to hire and retain talent for a diversity of skills needed for organizational success.

### 2. The existing technical culture rewards “Hero” behavior and an “in your face” communication style

- Executives discussed the prevalence of a “Hero” mindset in technical organizations, which impedes diversity of work styles and fails to recognize those who work to prevent problems. This impedes gender diversity in that it rewards a “last minute” crunch where 24/7 work becomes necessary to “save” a project, failing to acknowledge family responsibilities and flexibility needs. A pattern develops where an organization poorly defines requirements and project management. The engineer who comes in to try and “save” such a project gets rewards and recognitions for solving problems at the “11th hour,” while those who work to prevent problems from happening in the first place are not adequately recognized.
- This “hero” mindset encourages flows of “24/7” availability, impacting technical employees with family responsibilities – technical women are significantly more likely to be in dual-career couples than are technical men; therefore, they are more negatively impacted by this “hero culture.” At the highest levels of the technical ladder, this “Hero,” sacrificing mindset is sending the message that those who have family responsibilities need not apply – some companies report that women are deselecting themselves out of these positions for work-life balance reasons.

- Coupled with the hero mindset is a culture that rewards a specific communication style over others. The technical culture is very much an “in your face” and assertive work culture, a stereotypically masculine mode of communication.

### **3. Risk-aversion is embedded in recruiting and advancement practices**

- Most companies’ recruitment and advancement practices are structured to mitigate risk in hiring, which can significantly impede diversity. In recruitment, some companies favor people with similar backgrounds and levels of experiences, which reinforces workforce homogeneity. Other companies rely heavily on social networks in hiring, which also reinforce homogeneity as people tend to hire people who are like them.
- In advancement practices, standards are set that reflect the backgrounds of those already at the top, again valorizing similar career backgrounds, accomplishments, values, and work and communication styles. This leads to a “club effect” which impedes diversity, a phenomenon that many women refer to as the “good old boy’s network” which they can’t break into. In high-technology companies, this effect is especially visible at the Fellow or Architect level. Redefining the notion of success can prove challenging – some executives discussed how they were accused of “lowering the bar” when they introduced the idea of “interpersonal and collaboration skills” as criteria for hiring and promoting technical employees.

### **4. The individual contributor track lacks a development culture**

- The individual contributor technical track, especially at its highest level, lacks basic principles to broaden the pool of candidates. Executives acknowledged that the individual contributor track is critical to their ability to retain technical talent. Many companies created their Fellow positions out of a need to advance these individual contributors and maximize their retention as well as their contribution. However, criteria for becoming fellow or architect are often not clearly spelled out.
- The individual contributor work culture does not include mentoring the next generation of fellows/architects. The managerial/executive leaders, who are more likely to

perceive building the next generation of leaders as a part of their job, typically show more willingness to mentor others and talk about their journeys. This becomes a self-reinforcing mechanism – more mentors are available on the management side, therefore more diverse candidates go into management, leading to more role models on the management side.

### **5. The existing reward structures built around the high-tech culture do not encourage rapid change around this issue**

- The state of research on the barriers and solutions for technical women has taught us a lot about the issues facing technical women and how to fix them. However, cultural change is difficult – talk does not equate action, and companies are looking to change reward structures to foster needed change in organizational practices.

## **Solutions for Cultural Change**

### **1. Reshaping what is considered “valuable work”**

- One participating executive successfully shifted the perception that “computing is coding” by emphasizing problem-solving as the primary skill that was valued and rewarded, as opposed to coding in isolation. This emphasis has been built in the recruitment process of the institution, whereby new candidates are looked at for problem solving skills as opposed to strictly coding experience, and problem-solving is emphasized in advancement practices.
- Similarly, some companies have successfully shifted perception around the value of non-coding positions, altering promotion practices to recognize accomplishments driven by collaboration.
- See breakout group 5 below on how to measure contributions beyond coding.

### **2. Changes in recruitment practices**

- Technical executives are critical in fostering changes in recruitment practices. The decision-making process tends to be risk adverse, yet hiring is a lot about taking a risk. One executive discussed that he personally investigates candidates who are rejected by the hiring processes, in order to

see what kinds of skills his company may be missing out on. (See breakout group 1 on modifying hiring practices.)

- In interviewing candidates, companies should look for potential instead of a series of similar check boxes on a resume. Instead of looking at “points,” look at broader attributes; for example, SAT scores are not good predictors of performance once you’re in college, and GPA and the university one attended are not predictors of success in the corporate world. Yet many colleges and corporations recruit for GPA.
- Make sure that recruitment efforts reach out broadly to diverse communities – women, ethnic minorities, and candidates from various backgrounds. An effort on changing recruitment practices has to start from the top down.
- Examine the recruitment process for biases. For example, does the recruitment process measure actual knowledge, or confidence? One company found that low level managers were weeding out female candidates in recruiting interviews because women were more likely to answer “I don’t know” when asked to answer a question or problem they didn’t have sufficient information about; male candidates, by contrast, would provide an answer, even if non-accurate, because they had more confidence.

### 3. Changing advancement practices

- In line with the need to change perceptions about what is considered to be valuable work, some companies have successfully reshaped their promotion process to reward not only individual contribution but effectiveness in collaboration, mentoring others, and other attributes of leadership.
- Examine your criteria for success: what does it mean to be successful in your company? If you don’t have women at high levels and/or in the pipeline of high level positions, ask yourselves: why not? Are your criteria considering a diversity of profiles, experiences and skills? Is there a “club effect” at the highest levels?
- One organization proactively put mentors in place at levels where women weren’t moving up (especially at the highest executive levels and the Fellow/Architect levels). As a result, their company was able to increase the representation of women at these levels by 5%. Companies need

more women in those higher ranks to change the game and redefine the image of success.

### 4. Consider modifying the technical ladder

- As they think about how to design the technical ladder, companies need to consider which skills are needed for organizational success. Those technical skills are not limited to coding and assertive communication styles.
- Consider that having a diverse workforce means having employees with diverse needs at different stages of their lives. For example, one employee may feel that a few years in a managerial position is more conducive to their family situation, but may want to move back to an individual contributor role in the future. In many companies, moving back and forth between the individual contributor and management “tracks” becomes difficult beyond the mid-career level. However, rigidity in promotion structures fail to acknowledge the needs of a diverse workforce.
- Some companies successfully introduced a new role in the Individual Contributor (IC) track that would be more attractive to a diversity of candidates, enhancing their retention of top female talent.

### 5. Measurement

- Technical executives agreed that regularly examining the recruitment, retention and advancement data by gender is critical for them to diagnose problems and monitor progress on the issue.
- An important measure that has been successfully implemented in companies is whether employees feel like their companies honor the ideal of a meritocracy – any discrepancy in responses by gender, race, age or other attributes should serve as warning signs that not all groups feel like the current structure provides them with opportunities for success.
- In addition to a focus on quantitative data, leaders need to reach out broadly to diverse groups and have conversations with technical men and women at all levels, in order to understand how existing structures affect retention and advancement at a micro-level.
- Having discussions with young technical women in college (such as at the Grace Hopper Celebration of Women in Computing) and within one’s company proves beneficial

in keeping company culture up to speed with new generational expectations and needs.

- At the highest levels of a company, the value of diversity tends to be understood. However, executives can determine at which points in their pipeline this value is not reflected by existing processes – where do women drop off? For many, the inflection point is at the mid-level.

## 6. Leading at the macro and the micro levels

- At the macro level, if organizations want to sell products to diverse groups, they need to recruit and retain diverse groups. The push of this message needs to start from the top down and be spread as a corporate imperative for business success.
- At the micro level, individual leaders have to take responsibility for individually creating processes and cultures that are gender inclusive. One executive discussed her success creating change within her own department, where within 2 years she had 50% technical women working for her. As she put it, that change at the departmental level did not take a long time, nor was it very difficult. However, it had significant impact for the company in terms of the recruitment and retention of diverse talent.

## 7. Watch out for unintended consequences

- Many well-intentioned changes and programs that are meant to increase the representation of women can lead to unintended consequences if the organizational culture and structures aren't in place to support them. For example, one company had instituted job sharing and part-time solutions to increase retention of women who had family responsibilities. However, that company did not change how resources were allocated to managers, allocating budget by "FTE" rather than by the real cost associated with a part-time person. In the economic downturn, those positions became too costly to sustain and were eliminated, defeating the purpose of retaining technical women. Programs designed to fix inequities can't be at odds with company objectives; leaders need to put the burden of cost on *corporate* rather than on individual managers.
- Even when programs are in place, organizations can still "screw up" in retaining women. In some cultures, programs such as telecommuting, part-time, and flexible schedules

can increase retention but limit advancement. One participant asked colleagues to consider whether the programs they are implementing are creating a "good job" for women or a "good career" with advancement opportunities.

- Companies should not push the problem on women; programs at the micro-level are good, but initiatives need executive/corporate sponsorship. In many organizations, women end up leading change efforts for greater gender inclusion, at significant cost to their own time. This is the company's problem, not the women's problem.

## 8. Sustaining Change

- Inspect what you expect: technology executives need to shine a light on the issue of diversity and take responsibility to lead solutions.
- The road to change is not done overnight – organizations may do things today that don't reap benefits until years down the road. However, the long-term benefits of increased diverse talent surpass the short term costs of implementation.
- Participants discussed that while many are asking for more knowledge, statistics, and studies about the problem and the solutions, the reality is that executives do know that there is a problem, and know about the practices and cultural changes that would increase the recruitment, retention and advancement of technical women. Translating talk into action is the difficult part.

Participants in the Forum left with a call to action to investigate the representation of technical women at all levels in their organizations, and engage their companies in further cultural change. Next year's Forum, to be held at the Grace Hopper Celebration in Atlanta, Georgia, will further focus on solutions and barriers to implementation. The following section presents the outcomes of the breakout group discussions.

# Alignment of Organizational Behavior to Support Hiring, Retention and Promotion of Women

This document summarizes insights, strategies, and solutions that may help align an organization's behavior to support women in technology and leadership roles.

## 1. Take risks on hiring to counter potential bias. Research suggests women are filtered out at a higher percentage rate than men during both the resume screening and interviewing process.<sup>1</sup>

- **Interview all women candidates:** One company found that women do not seem to be preferentially eliminated during the interview process. Rather, they are often eliminated during the resume review process, thus missing the opportunity to interview. Because of this, some argue that all women candidates should at least get an interview, and this action will result in a higher percentage of women hires. Another high-tech company also found that increasing the number of women interviewed for summer internships increased the number of women hired.
- **Don't look for exact experience matches** or you will reflect the population mix in leadership today. Instead, look for women candidates:
  - With exceptional accomplishments (built products & organizations from ground up, won product awards, positive ROI on products, etc.)
  - Who demonstrated via successes at previous jobs, an ability to pick up technologies & industry experience needed for their next job.
  - Who know what they should know, well. But may not know everything they need to know to do your job.
- **Take risks, don't require 100% consensus to hire women.**
- **Set clear written criteria to evaluate all candidates.** Push back on evaluations that are vague or have unsubstantiated statements. Focus on abilities/accomplishments, not exact experience matches.

- **Set the stage for a successful start.** After hiring a woman but prior to the candidate's start date, use interview feedback to determine actions that could help the candidate get off to a good start (including engaging the right support/mentor, clarifying responsibilities, and positioning a candidate appropriately).

## 2. Create tangible rewards & visible support by establishing written performance criteria. Reinforce values by rewarding individuals who enhance/build bridges towards creating a result-oriented, 'inclusive' environment.

- **Establish regularly awarded individual performance awards** (based on a published evaluation criteria) to communicate a value system/culture you want to establish. Write the evaluation criteria for individuals to nominate peers (could have 2-3 categories) with managers determining the award winners. Criteria suggestions below:
  - Recognize people who produce high quality, on schedule, and in budget products instead of "firefighters". Comments made about women who tended to be strong planners and good at executing on plan, but failed to get recognized to the same extent as high profile firefighters (seemingly more men). Additionally, it appeared firefighters received accolades for fixing issues that would not have happened if they had previously constructed a better plan and/or had better executed to plan (e.g. fewer bugs, etc.)
  - Recognize 'glue' roles. Several participants had organizations where women gravitated to 'glue' roles involving large scale collaboration and felt organizations inappropriately assessed these roles as less critical than technical roles.

- **Specify areas to evaluate in writing, for a 360 performance feedback (don't leave it open).** This could include diversity goals. This can help support a cultural change if evaluation areas synchronize with stated values.
- **Establish a 'diversity' evaluation/goal on performance evaluations** for all employees to work toward and contribute. This establishes a commitment, awareness, and ownership for the entire team to find ways to use their individual strengths/roles to contribute to a diversity goal. It gives a clear indication from leadership that diversity is supported and undermining and/or not proactively contributing to this goal would impact a person's performance evaluation. It takes everyone's participation to effect a cultural change across an organization (including women and underrepresented individuals).
- **Establish a 'diversity' evaluation/goal** for promotions into all leadership roles. This will send a clear message that a required leadership skill includes demonstrating the ability to successfully grow a culture that enhances, values, and promotes diversity across a group and/or organization.
- **Focus on performance reviews of women.** Require managers add additional information on reviews.
  - Describe what each woman needs to become "promotable." Women get stuck in the mid-career positions and lack the networks, mentors, or advocates to move them forward. Often these women are performing at very high performance levels in their current positions, but they lack an advocate to guide them through the next steps to move their promotion forward.
  - All managers should meet, by level, to discuss women and/or other groups that are under-represented. For each candidate they should establish what is "missing" for them to be "promotable" AND discuss each manager's actionable plan to address missing skills, including assignments for the following year. It is important to highlight a high performing individual who is not being promoted and/or moved to a more challenging assignment. This must be part of an evaluation or it will never get done.

### 3. Create an explicit visibility and attention to diversity needs and statistics by leadership creating, supporting, and advocating visible organizational infrastructure and processes.

- **Leadership to review diversity statistics on a regular basis** (once/quarter). Discuss areas needing improvement and possible solutions/goals. A couple suggestions:
  - Explore tactical and/or cultural issues that might improve lagging statistics with others who have successfully demonstrated moving an organization to greater diversity. Take a risk and commit to implement at least one or two suggestions within a framework of an overall plan. Set clear commitments for the leadership, measures of success, timeframes, and any necessary resources for a plan (e.g. hiring initiatives, training, bonuses, etc.)
  - Use the statistics to monitor if women are progressing sufficiently across all levels and areas. For example, if you have 10 women in the organization, see if the distribution of those 10 reflects the distribution of men. Set measurable goals to fix any imbalances. If it's not possible to create a reasonable distribution, then the organization should evaluate their hiring practices, opportunities being given to women for growth jobs or other factors such as culture artifacts that may hinder women's growth.
- **Create an advisory council.** Have two individuals from each of your organizations raise awareness and solutions to address key women/diversity issues in the workplace directly to top leadership. This strategy is implemented at Xerox. The council has suggested innovative and popular policies such as 'buying' an extra week of vacation for employees needing more time off.
- **Create a promotion workshop for women.** The purpose of the workshop is to help women prepare for advancement to technical fellow roles. Use the workshop to find out where women need more opportunities for experiences and to help them build the portfolio required to get promoted successfully. This approach was used to double the number of women technical fellows from 3 to 6 at one company.

#### **4. Build inclusive networks by looking at your own network and networks around you.**

Actively include or encourage inclusive networks of individuals through personal introductions, or invitations. For example, executives could build networks to include more women. Invite women to informal gatherings during work hours (e.g. lunch) or encourage inclusive activities (especially if the activity is well known in the organization). Research across industries show that when managed effectively, diverse teams outperform other teams. Furthermore, corporations with an inclusive culture benefit from increased employee engagement, a significant predictor of Return on Investment.<sup>2</sup>

- **Balance information sources and/or support direct communication paths with women.** A senior executive happened to have a close relationship with two men in his/her group; being comfortable with these individuals, he/she regularly went to lunch with both of them while having a packed schedule to meet others. As a result, he/she heard many of the current issues via this perspective, and fostered a perception that he/she did not want to take the time to hear other facets /opinions surrounding issues.
- **Introduce women to others you trust in the organization.** Find joint engagements that are synergistic, and encourage relationships that can build in a non-controversial environment.

#### **Follow-up, comments on discussion:**

1. An inquiry was made during the session, asking if significantly increasing women graduating with technical degrees would, overtime, force institutional transformation and increase the representation of women in leadership roles.

#### **Response from Caroline Simard, Anita Borg Institute for**

**Women and Technology:** For such a change to happen through numbers, the proportion of women and minorities graduating with technical degrees would need to increase substantially. For example, the field of medicine has reached gender parity in graduation rates, and while the proportion of women in leadership medical roles has increased, the field still struggles with residual gender bias embedded in evaluation and promotion practices. Similarly, the field of mathematics is at parity in undergraduate degree enrollment, and yet suffers from an underrepresentation of women in faculty positions. The group concludes that increasing the proportion of women graduating with technical degrees will not be a sufficient condition for institutional change.

## A Tool for Detecting Bias

### 1. Research has shown that unconscious bias leads to the following negative effects for technical women in academia, industry, and government:

- Given equal qualifications, women are less likely to be hired and promoted than are men in male-dominated domains.<sup>3</sup>
- Letters of recommendations tend to contain language that reinforces gender stereotypes and schemas.<sup>4</sup>
- Women are more likely to be stereotyped as “family focused” and “unwilling to travel” and are a result are passed up for promotions.<sup>5</sup>
- Gender bias can affect performance evaluations, whereby leadership is construed in stereotypically masculine traits and women’s contributions are devalued.<sup>6</sup>
- Research shows that women are not afforded as much of a repertoire of behaviors when it comes to assertiveness. That is, women are either viewed as “not assertive enough” or “too assertive.”<sup>7</sup>
- Even in organizations that employ merit-based reward systems, a study finds that women and underrepresented minorities receive less financial compensation given equivalent performance appraisals.<sup>8</sup>
- In high-tech organizations, women managers are perceived as being less “technically competent” than are men.<sup>9</sup>

Unconscious bias is the result of deeply ingrained cultural assumptions and long-standing social hierarchies. Yet, most individuals in academia, government, and industry strive to build fair work environments and would welcome a tool to prevent such biases.

### 2. Solution: A Software Tool for Detecting Bias

- A software solution grounded in rigorous research on gender bias would speak to technical professionals. The tool should be widely available online and high in usability, resulting in increased awareness in users of their own gender biases. One online tool can be found at Project Implicit – <https://implicit.harvard.edu/implicit/>. We envision building on such research to create a system where specific language can be fed and analyzed for the existence of bias.
- Such a tool, using machine learning and text analyses methods, would help organizations and individuals address the existence of bias before the damaging language is formally used in recommendations or evaluations.
- The tool would also be a high-impact diagnostic tool for calibrating organizations, addressing the existence of bias in existing organizational processes. For example, what is the language used to justify hire/non-hire decisions or promotion/non-promotion decisions, and is the existence of bias quantifiable in that language? Managers and executives would benefit from reviewing their decisions with the software.

# Organizational Obstacles and Solutions for Increasing the Representation of Technical Women

## 1. Family

- Organizations need to recognize the basic fact that women are involved in childbirth and therefore will face needs for parental leave, flexible schedules, and in some cases different career plans.
- We need to help women adequately set expectations with their managers once they have a family, and we need to create executive sponsorship that recognizes and values family.
- These factors need to be incorporated in career planning.

## 2. Gender-specific factors

- It is difficult to obtain sponsors and mentors – organizations can set up facilitating mechanisms and help women.
- Risk-taking is necessary to career advancement in technology – organizations need to focus internal development on risk-taking.

## 3. Environmental Factors

- Many technical cultures leave women feeling isolated and crushed.
- Change starts within our own groups as executives.

## 4. Career Management

- Recruitment and advancement processes ‘genericize’ talent and puts them in “one size fits all” boxes. As a result, we lose out on a diversity of talent and on people’s best skills.
- Focus on getting the right people in the right job as opposed to making them fit in a mold. This includes creating career paths for specialists, who have unique skills to contribute to organizational success.
- Organizations need to “shop the internal closet” – instead of hiring from outside for positions in a systematic way, the organization should look from within first and find people who are poised for advancement, even if they do not fit a set of rigid pre-requisites.
- Re-train employees – at the beginning of the high-tech industry, extensive training and development were the norm in many companies. This infrastructure has been dismantled in many US companies, even though research shows that the organizations with long-term success engage in significant employee development and training.

## Industry Engaging with K-12 in the Reform Process

### **1. Research shows that at the K-12 level, girls are not actively encouraged to get involved in science and engineering studies and careers, because of several barriers:**

- Gender stereotypical assumptions held by parents and teachers about appropriate career and study choices for girls.
- Lack of awareness and role models for a computing career.
- When awareness exists, a negative image of computing careers prevails, one that is associated with being a “male, antisocial nerd.”
- Inadequate computer science curriculum at the K-12 level in public schools
- A non-inclusive curriculum when computer science is taught, with an immediate focus on coding and the absence of context setting courses that can explain to girls the role of computer science in solving societal problems.

### **2. Private companies who wish to increase the representation of technical women and reap the business benefits of diverse talent have a responsibility to support efforts to increase diversity and access to math and science education at the K-12 level.**

- Examples of such initiatives include:
- EPICS High School <https://engineering.purdue.edu/EPICSHS/>
- Project Lead the Way [www.pltw.org](http://www.pltw.org)
- Dare 2B Digital, a conference on careers for Young Women (7th to 10th grade) using Computing technologies
- Expand your Horizons conference series

### **3. During the breakout we outlined 5 areas of common interest and possible action:**

- Project Lead the Way and a Partnership with a local university to support that.
- Dare 2B Digital – the conference for 300 young girls, happening in Palo Alto in Feb 2010.
- Aggregation Site that lists activities that are happening in a region.
- A complete listing of initiatives is kept by the National Girls Collaborative Project: <http://www.psctl.org/ngcp/#>.
- Investigate a monthly activity together with Girl Scouts.

As of Nov 5th 2009, the group has followed up on a and b.

## How to develop a more balanced metric for evaluating success and leadership potential

As discussed in the morning session, most organizational recruitment and promotion practices fail to consider a diversity of skills and work styles that are needed for organizational success.

Factors that should be considered in evaluating a candidate's technical leadership potential (in recruitment and advancement practices) include:

- A greater recognition of collaboration successes and ability, as opposed to sole focus on “individual contribution.”
- Recognize a candidates' ability to inspire a team and bring a product to market, as opposed to only considering “code”.

- Recognizing accountability, integrity, and responsibility (and not the “Hero” behavior).
- Recognize results over “style” (style dimensions that can cloud a focus on results include: face time, assertiveness, competitiveness, and “hero” behavior).
- Require all managers and executives to demonstrate specific accomplishments to improve inclusion and diversity. The most successful companies in diversity and inclusion are those who include accountability in their evaluation processes.

The above criteria can be measured and address a broader need for the organization to develop and promote leaders, technical and otherwise.

## Notes

- 1 See Simard, C. (2008) The Prevalence of Gender Bias and Stereotyping. [http://anitaborg.org/files/the\\_prevalence\\_of\\_gender\\_stereotyping\\_and\\_bias.pdf](http://anitaborg.org/files/the_prevalence_of_gender_stereotyping_and_bias.pdf)  
Excerpt from above article: “Given equal qualifications, women are less likely to be hired and promoted, especially for roles that are traditionally stereotypically masculine such as engineering. One study found more bias against candidates applying for technical leadership jobs than other job categories.” (Ref 13 and 14)  
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