

Women in Technology: Maximizing Talent, Minimizing Barriers

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FOREWORD

In 2003, Catalyst released *Bit by Bit: Catalyst's Guide to Advancing Women in High Tech Companies*, which revealed a number of barriers facing women in the high-technology industry. In particular, women and men participating in the study discussed the failure of high-tech companies to identify and develop women's talent. Fueled by this finding, in 2005, Catalyst partnered with ISR (subsequently Towers Perrin-ISR), a global survey company, to undertake a study to more fully address and understand women's talent management within technology companies. Catalyst also fielded a subsequent study to examine drivers of satisfaction, retention, and advancement.

The study's first phase focused on talent management among women and men in high-tech companies. The second phase surveyed women working in technical roles at non-tech companies and women working in any role at high-tech companies. The purpose of this second phase was to hear directly from women about their careers and how their work experiences related to job satisfaction, talent management, and advancement. This phase yielded data on actionable steps organizations can take to more fully involve, satisfy, develop, and advance women employees.

This report furthers Catalyst's previous research on women in the high-tech industry by summarizing the findings from both phases of this project. It sheds light on important issues facing companies by providing data related to women's perception of:

- Supervisory relationships.
- Fairness and voice within their companies.
- Development and training opportunities, as well as career planning.
- Barriers to career advancement.
- Generational differences among women in the technology workforce.
- Equal opportunity and diversity.
- Opportunities within their companies related to the type of company in which they work.

By examining these topics, Catalyst gauged women's overall satisfaction and engagement with their jobs and their companies.

This study comes at a critical time for all companies seeking to attract and retain top-quality talent. As the job market in technology has become increasingly competitive, companies must provide a work environment where women can flourish and succeed. This report helps companies identify areas where they should increase focus and attention and gives them the feedback necessary to make change for women within their organizations.

CHAPTER 1: INTRODUCTION

The high-technology field has long been pegged as one that is inhospitable to women because it has been—and continues to be—dominated numerically by men. Common wisdom and previous research suggested that the barriers to advancement that women in technology companies faced and the experiences that they had as a result of the male dominance and pervasively masculine culture of the field led to dissatisfaction among women employees. Moreover, among women in technical jobs, dissatisfaction and disenchantment were found to be especially acute. In recent years, however, the climate for women in technology companies has begun to change. With a very robust market for jobs in information technology, companies have had to respond to employees' demands for better working environments. Indeed, companies have found themselves in competition to attract and retain highly qualified talent—including women and men.

Since the dot-com bust at the beginning of the decade, the demand for technology jobs has improved dramatically. Indeed, as the National Center for Women and Information Technology (NCWIT) reports, "There are now more IT jobs in the United States than there were at the height of the dot-com boom."¹ Because of this increased demand for technical employees, as well as the context of increased corporate competitiveness, highly qualified women within technical fields have had significant opportunities available to them. Moreover, at least one study reported that women in the field are largely satisfied with the work they do and generally satisfied with their employers.²

Despite the increased opportunities and relative satisfaction among technical women, recent employment trends indicate that the percentages of women in specific technical fields have remained flat or declined since the dot-com bust.³ That is, while women in technical jobs appear to enjoy the work they do, there are fewer women in these jobs than there used to be. There are likely many reasons for this decline, and prior research by Catalyst and others has shed light on challenges that women in technology face. Factors that drove women away from high-tech companies early in the decade included:

- An exclusionary culture that did not support women's advancement.
- Inflexible workplaces that were not conducive to work-life effectiveness.
- Isolation of women because of a lack of role models, networks, and mentors.
- The failure of companies in the high-tech sector to strategically and objectively identify and develop talent.⁴

There are many reasons to suggest that companies have made measurable progress for women in technology in recent years. Barriers for women in technology were well-documented by Catalyst's *Bit by Bit* study and

¹ NCWIT, *NCWIT Scorecard 2007: A Report on the Status of Women in Information Technology* (2007): p. 19.

² Patricia Shafer and Barbara Trautlein, "Women in Technology: 2007 Report," *WITI SAVVY* (2007): p. 19-23.

³ Carmen Nobel, "Why Are Women Exiting IT?," *Infoworld* (January 29, 2007): p. 34.

⁴ Catalyst, *Bit by Bit: Catalyst's Guide to Advancing Women in High Tech Companies* (2003). Kay Bartol and William Aspray, "The Transition of Women From the Academic World to the IT Workplace: A Review of Relevant Research" in J. McGrath Cohoon and William Aspray, eds., *Women and Information Technology: Research on Underrepresentation* (Cambridge, MA: MIT Press, 2006): p. 377-420. Sharon Gaudin, "The Critical Shortage of Women in IT: Reversing Downward Spiral in Ranks of Female IT Workers is Critical to Solving Technology Worker Shortage," *Network World* (November 11, 1999). Andy Vuong, "Women Facing High-Tech Hurdles," *Chicago Tribune* (June 24, 2001).

others by the early 2000s. Since that time, companies have invested extensive resources—in terms of dollars, personnel, and programs—to effect change for women in technology. For example, as part of the *2006 Catalyst Member Benchmarking Report*, 91 percent of responding member companies in the information technology category told Catalyst that they had diversity-focused programs or activities designed specifically for women in the United States, and more than one-half of them had programs or activities for their female employees in every region of the world. Ninety-one percent of information technology participants also said they employed recruiting strategies in the United States aimed at increasing the number of women and people of color in their workforces. More than two-thirds—70 percent—offered formal, organization-sponsored mentoring programs to women employees, and 90 percent had organization-sponsored employee network or resource groups for women.

Catalyst Award-winning members in the high-tech industry also have been pushing to more fully develop, include, and satisfy women in the workplace since the early 1990s.

- Hewlett-Packard Company, recognizing the importance of the recruitment and retention of experienced technical women to their business, held a worldwide Technical Women's Conference in 1991 that attracted 800 attendees. The conference showcased female engineers and scientists in the company and also provided career development workshops.
- In 1992, Pitney Bowes Inc. formed a taskforce that would produce the company's Strategic Diversity Plan, which included, among other things, mentoring, strengthening of career-planning processes, rotational and special assignments, and the development of competency models. The Strategic Diversity Plan was aligned and individualized within each business unit, and progress was measured on a monthly basis, producing a steady increase in the number of women in management.
- Texas Instruments reorganized hierarchical structures in the early 1990s by creating multilevel, cross-functional teams to create opportunities for women by circumventing barriers. Women advanced more quickly within the organization because of increased visibility and access to developmental assignments.
- In the mid-to-late 1990s, IBM Corporation re-focused its business strategy to become more market-driven, recognizing that to appeal to a diverse customer base, the company itself must be diverse and incorporate women globally. Additionally, increased competition for technical talent demanded that the company embrace both diversity and workplace flexibility. As a result of its cultural change efforts, in the late 1990s, IBM saw a 175 percent increase in the number of women executives as well as a 235 percent increase in the number of women of color executives.

To what extent have company efforts at incorporation borne fruit for women in technology? What advances have been made, for whom, and where? To address these questions, Catalyst embarked on a study in 2005, in partnership with ISR (subsequently Towers Perrin-ISR), to more fully understand the management of women's talent in technology companies. Specifically, Catalyst used Towers Perrin-ISR employee survey satisfaction data to compare the attitudes of women to men and to subgroups of women based on features such as job

roles, employee age, and type of company. Catalyst analyzed Towers Perrin-ISR employee survey data from 21⁵ global high-tech companies.⁶ Women and men in these companies responded to a variety of questions in the following six areas.⁷

- Companies as places to work
- Supervision and corporate leadership
- Career development and talent management
- Fairness and voice
- Job satisfaction, engagement, and commitment
- Work-life effectiveness

For each of these substantive areas, analyses focused on two primary questions:

- 1) How, if at all, did the perceptions and experiences of women and men in these high-tech companies differ?
- 2) How, if at all, did the perceptions and experiences of women working in technical roles—such as engineering and research and development⁸—differ from the perceptions and experiences of women in non-technical roles, and from those of men working in any role, in these high-tech companies?

The findings revealed that while women in technology companies were generally satisfied, there were areas of particular concern—specifically around supervisory relationships and perceptions of fairness and voice—that companies must address.

Years of advisory service work has taught Catalyst that people do not leave companies—rather, they leave supervisors. A direct effect of companies' failure to address the supervisory relationships of technical women will be the loss of highly qualified talent. Likewise, data on the perception of fairness and voice make it amply clear that failure to provide employees with the opportunity to speak up, participate in decision-making processes, and be heard will result in lower employee satisfaction and performance. In an age of increased corporate competition, companies cannot afford these risks.

Motivated by these findings, Catalyst undertook a second study of women working for technology companies and/or in technical roles. In an online survey, we sought to hear directly from women their recommendations for ways that companies could improve the development and management of women's talent. Additionally,

⁵ While the data represent 21 high-tech companies, there were 23 "survey events," meaning that, for two companies, more than one division was surveyed. The surveys were administered from 2002 to 2005.

⁶ Towers Perrin-ISR defined "high technology" based on products, as well as the research and development (R&D) intensity of the organization. The R&D intensity was based on two factors: first, the relatively higher proportion of scientists, engineers, and technicians employed by the companies (vis-à-vis non-tech companies); and second, the nature of the R&D activities undertaken. Eligible product categories included: software development; office machinery and computer manufacturing; electronics (especially those with a communications function); and biotechnology. The definition did not include scientific instrument manufacturing and non-electrical machinery.

⁷ These areas are described more fully later in the chapter.

⁸ Employees were classified based on their job functions or titles. To accomplish this task, lead researchers from Towers Perrin-ISR, in consultation with Towers Perrin-ISR survey project managers for each company, reviewed specific job titles for the companies included in the analyses. Based on these job titles, employees working in jobs directly related to the development of the high-tech companies' products were classified as fulfilling a technology function or role. IT workers in high-technology companies were coded by Towers Perrin-ISR as technical workers based on their job titles and because the role of IT workers in technology companies was viewed as directly related to the development of companies' products. Employees working in jobs not directly related to the development of high-tech companies' products were classified as having a non-technical function or role. In those cases where it was not clearly evident from the job title that a job was directly related to the development of a company's products, the researchers were conservative and classified the employee as fulfilling a non-technical function or role.

the survey asked women about the barriers to career advancement that they faced within their companies, and analyzed the ways in which these barriers may vary by generational cohort and by the type of company in which they worked.

Findings from this second phase of analysis revealed the persistence of barriers for women working in high-tech companies and/or in technical roles. However, Catalyst was encouraged to find that the women surveyed were less likely to perceive barriers to career advancement than a cross-industry sample of women surveyed early in the decade.⁹ Catalyst also found that the prominence of perceived barriers to advancement varied based upon the number of other women in a department or work group, as well as a woman's generational age.

In summary, this report presents findings from a two-phase investigation of multiple aspects of talent management and seeks to gauge to what extent improvements have been made for women. The report assesses the following areas:

- Measures of overall satisfaction, engagement, and commitment.
- Comparisons of perceptions between women and men in high-tech companies.
- Perceptions of barriers to career advancement.
- Variations among subgroups of women in technology based on factors such as age and company type.

The report also details specific action steps companies can take to improve the management of women's talent, their satisfaction with supervisors, and their satisfaction with their companies' approaches to diversity and inclusion.

KEY FINDINGS

The most important findings from this study are presented below. Subsequent chapters detail the findings and provide interpretations of the findings. We also provide two diversity and inclusion practices that describe programs companies have implemented to advance women.

Chapter 2: Technical Women: The Importance of Supervisors, Fairness, and Voice

- Technology companies have made progress for women in recent years. Analyses of employee survey data revealed that both women and men were generally satisfied—with few differences—with their jobs and work environments.
- However, substantial gaps emerged between technical women and other employee subgroups on two sets of measures:
 - Technical women were less satisfied with their supervisory relationships than women in non-technical roles, men in technical roles, and men in non-technical roles.
 - Technical women were less satisfied with their companies' approaches to fairness and voice than women in non-technical roles, men in technical roles, and men in non-technical roles.

⁹ Catalyst, *Women in U.S. Corporate Leadership: 2003* (2003): p. 16-17.

- Companies must address the two critical areas of supervisory relationships and fairness and voice if they are to retain technical women.

Chapter 3: Making Strides: Advice From Women

- Women working in technical roles and/or for high-tech companies said that there were several steps their supervisors could take to improve the supervisor-supervisee relationship, including:
 - Communicating openly and directly with supervisees.
 - Providing regular, performance-related feedback.
 - Providing access to more challenging assignments.
 - Implementing stronger career- and goal-planning processes.
- Women working in technical roles and/or for high-tech companies said their companies could enhance perceptions of fairness and voice by taking the following steps related to equal opportunity:
 - Advancing and promoting more women.
 - Ensuring diverse corporate leadership.
 - Accepting diverse individual working styles.

Chapter 4: Factors Affecting Women's Perceptions of Barriers to Career Advancement in Technology

- While barriers to career advancement continue to exist for women within the high-tech sector, the extent to which these barriers were perceived diminished in relation to previous cross-industry analyses.
- Women who worked with greater numbers of women in their work groups or departments were less likely than others to perceive barriers to career advancement.
- Among the barriers that continue to exist for women in technology, women most often cited:
 - A lack of role models similar to themselves.
 - Not having a mentor, sponsor, or champion to make accomplishments known.
 - Being excluded from important networks of decision-makers.
- The perception of barriers to advancement varied by generational age, with Baby Boomers being more likely than members of Gen Y to perceive barriers to advancement.
- Women working in different types of companies differed on a number of individual-level and job-related characteristics, including educational background, nationality, managerial position, and job role. However, these differences did not translate into different perceptions when it came to barriers that had limited women's career advancement.

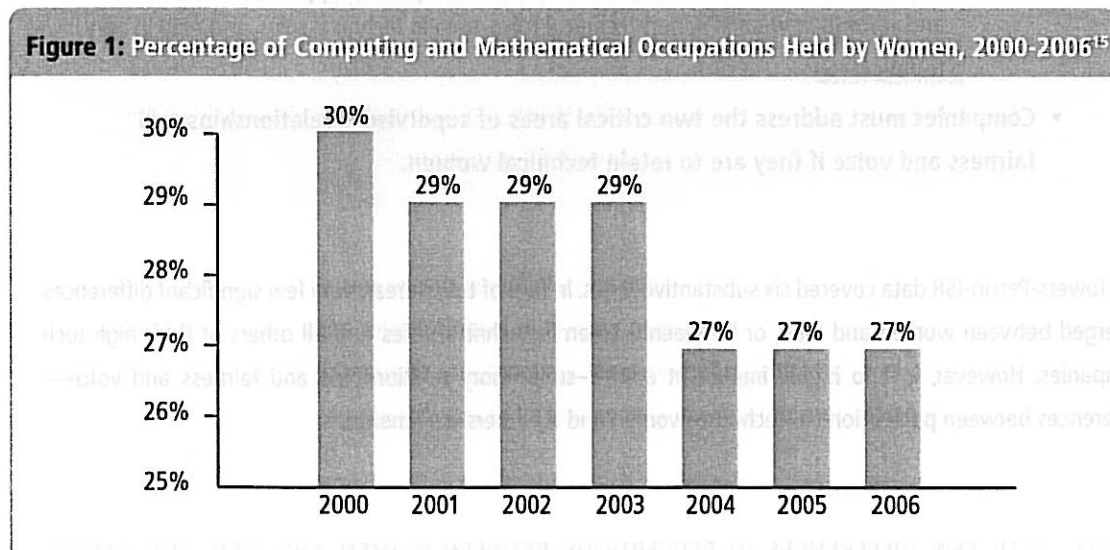
CONTEXT-SETTING: TRENDS FOR WOMEN IN THE HIGH-TECH JOB MARKET

As noted earlier, prior research on women in the technology sector indicated that high-tech companies and especially technical jobs within high-tech companies were not particularly hospitable for women. Research documented that women faced numerous barriers to advancement that men managed to avoid.¹⁰ Despite

¹⁰ For an excellent review of this literature, see Bartol and Aspray. See also Nobel; Dana Wilson-Kovacs, Michelle Ryan, and Alex Haslam, "The Glass Cliff: Women's Career Paths in the UK Private IT Sector," *Equal Opportunities International*, vol. 25, no. 8 (2006): p. 674-687.

these challenges for women, recent research has suggested that women in technology are largely satisfied with their jobs.¹¹ An understanding of labor trends in the technical job market helps to set the context for the findings of this study.

Women's representation within the high-tech industry has fluctuated over the past couple of decades. Women made early strides into the high-tech industry in the 1970s and 1980s. During the boom of the 1990s, intense growth in the industry caused companies to focus considerable attention on the retention of women. When the downturn in the market came in 2001-2002, however, technical employees were hard-hit, and some observers have suggested that women may have been hit harder than men.¹² Now, several years following the market bust, demand for skilled technical employees is once again increasing at a substantial rate.¹³ Women, however, do not appear to be benefiting this time. Indeed, Figure 1 indicates that the percentage of computing and mathematical jobs held by women within the United States declined between 2000 and 2004 and has remained flat for the past three years.¹⁴



Given increased demand for labor in the technology industry and a nonexistent growth rate in the share of computing jobs held by women, practitioners, journalists, and scholars have found themselves asking once again how to entice women into the high-tech industry. This report sheds light on this very important question using quantitative and qualitative data to provide traction on issues of concern to women in technology. Moreover, the report outlines action steps companies can take to meet the demands of women in high tech who are "voting with their feet."

¹¹ Shafer and Trautlein.

¹² John P. Mello Jr., "Women Gain, Lose in IT Woes: Some Fall Victim to Layoffs, Others See Responsibilities Increase," *The Boston Globe* (February 3, 2002).

¹³ NCWIT, p. 14. Allen Bernard, "High Tech Jobs Rebounding," *CIO Update*, (April 25, 2007). CNN, "Higher Demand for Hi-Tech Workers: Challenger Report Shows That Job-Cuts in the Tech Sector Are Down 40 Percent From the Year-Ago Level," (April 10, 2006): http://money.cnn.com/2006/04/10/news/economy/jobs_tech

¹⁴ Nobel, p. 34. Additionally, educational statistics show that women are currently earning only about 25 percent of bachelor's degrees in computer science, down from 37 percent in 1985 (NCWIT, p. 9).

¹⁵ *Ibid.*

CHAPTER 2: TECHNICAL WOMEN: THE IMPORTANCE OF SUPERVISORS, FAIRNESS, AND VOICE

Findings at a Glance

- **Technology companies have made progress for women in recent years. Analyses of employee survey data revealed that both women and men were generally satisfied—with few differences—with their jobs and work environments.**
- **However, substantial gaps emerged between technical women and other employee subgroups on two sets of measures:**
 - Technical women were less satisfied with their supervisory relationships than women in non-technical roles, men in technical roles, and men in non-technical roles.
 - Technical women were less satisfied with their companies' approaches to fairness and voice than women in non-technical roles, men in technical roles, and men in non-technical roles.
- **Companies must address the two critical areas of supervisory relationships and fairness and voice if they are to retain technical women.**

The Towers-Perrin-ISR data covered six substantive areas. In four of these areas, very few significant differences emerged between women and men, or between women in technical roles and all others at their high-tech companies. However, in two highly important areas—supervisory relationships and fairness and voice—differences between perceptions of technical women and all others *did* emerge.

AREAS WITH FEW DIFFERENCES IN PERCEPTIONS BETWEEN WOMEN AND MEN, AND AMONG WOMEN, IN HIGH-TECH COMPANIES¹⁶

Few differences emerged between women and men, or among women in high-tech companies in the following areas:

- **Companies as places to work.** This topic included measures relating to quality of work, company image, and pay and benefits. It was characterized by relatively high levels of employee satisfaction (greater than 60 percent) except with respect to pay, where less than 60 percent of employees agreed that their salaries were competitive or fair compensation for their work.
- **Career development and talent management.** This topic included goals, recruitment and retention of talent, career development, performance evaluation, and equal opportunity and diversity. Satisfaction among employees in these substantive areas had greater variability, with general dissatisfaction (30 to 40 percent) on measures relating to career development and high levels of satisfaction (about 70 percent) with respect to goals.

¹⁶ For the following analyses, t-tests of group mean differences were employed to ascertain that differences were significant at $p < .05$.

- **Job satisfaction, engagement, and commitment.** Levels of satisfaction relating to general job satisfaction, engagement, and intent to stay were generally high—about 70 percent.
- **Work-life effectiveness.** Measures relating to working conditions, staffing, stress, and workload revealed moderate levels of employee satisfaction at about 50 to 60 percent.

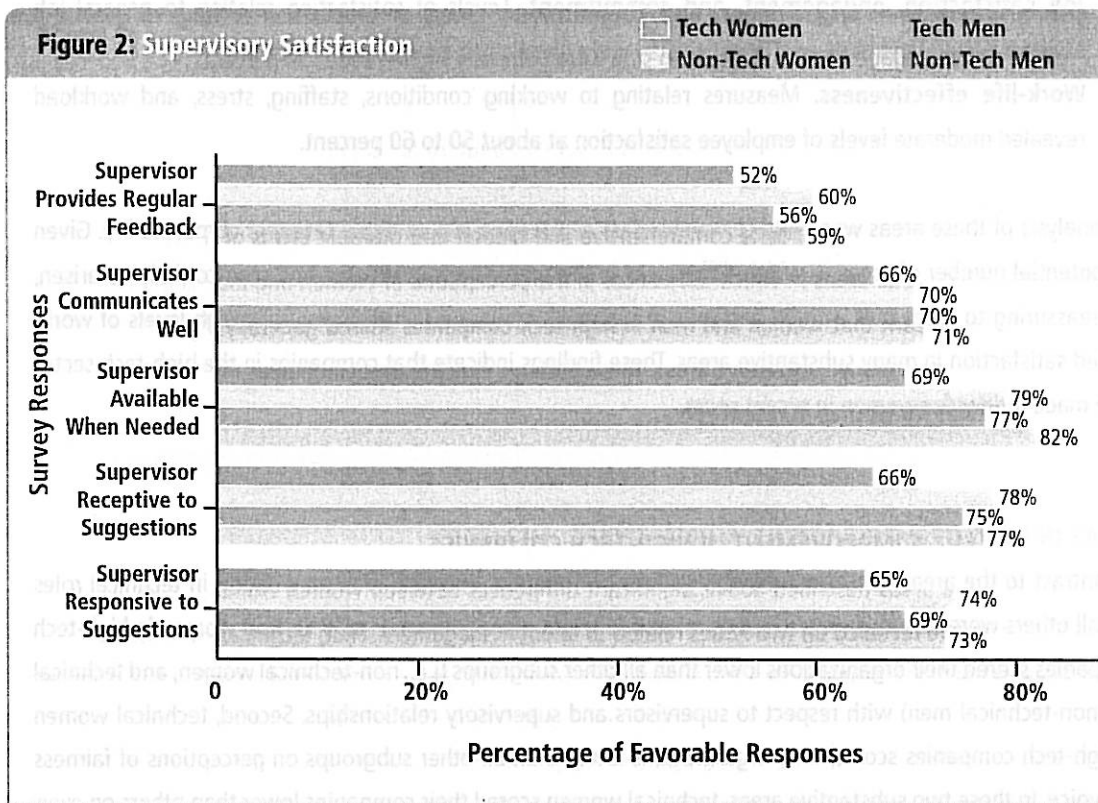
The analysis of these areas was quite comprehensive and tapped into multiple facets of corporate life. Given the potential number of areas in which differences in the perceptions of women and men could have arisen, it is reassuring to learn that women and men in high-tech companies shared generally high levels of work-related satisfaction in many substantive areas. These findings indicate that companies in the high-tech sector have made strides for women in recent years.

AREAS IN NEED OF IMPROVEMENT IN HIGH-TECH COMPANIES

In contrast to the areas described above, significant differences between women working in technical roles and all others were revealed on two issues related to talent management. First, technical women in high-tech companies scored their organizations lower than all other subgroups (i.e., non-technical women, and technical and non-technical men) with respect to supervisors and supervisory relationships. Second, technical women in high-tech companies scored their organizations lower than all other subgroups on perceptions of fairness and voice. In these two substantive areas, technical women scored their companies lower than others on every measure relating to supervisors and fairness and voice. In the following section, we explore each of these areas in depth.

Supervisors

As shown in Figure 2, while employees were generally positive about their supervisors, technical women were less likely to rate their supervisors satisfactorily than any other subgroup of employees. Fifty-two percent of technical women—compared to 60 percent of women in non-technical roles, 56 percent of men in technical roles, and 59 percent of men in non-technical roles—said that their supervisors provided them with regular feedback. Sixty-six percent of women in technical roles—compared to 70 percent of women in non-technical roles, 70 percent of men in technical roles, and 71 percent of men in non-technical roles—agreed that their supervisors communicated well. Sixty-nine percent of women in technical roles—compared to 79 percent of women in non-technical roles, 77 percent of men in technical roles, and 82 percent of men in non-technical roles—stated that their supervisors were available when needed.



Women in technical roles were also less likely than all others to say that their supervisors were both receptive to and responsive to their suggestions. Receptivity to suggestions indicates a willingness to listen, while responsiveness involves taking action on a suggestion. Sixty-six percent of women in technical roles—compared to 78 percent of women in non-technical roles, 75 percent of men in technical roles, and 77 percent of men in non-technical roles—said that their supervisors were receptive to their suggestions. Sixty-five percent of technical women—compared to 74 percent of women in non-technical roles, 69 percent of men in technical roles, and 73 percent of men in non-technical roles—found their supervisors to be responsive to their suggestions.

One cannot overstate the importance of supervisory relationships to the retention of employees. Indeed, as noted in the introduction, Catalyst knows that employees don't leave companies—they leave supervisors. If companies are to retain highly qualified women, they must recognize that addressing and improving supervisory relationships is a critically important issue.

One way that companies can begin to address this perceptual gap between technical women and other employee subgroups is through enhanced supervisory training. Managers—and in particular those managers coming from a technical background—could benefit from in-person training classes that teach them how to be better coaches, mentors, and advocates for their supervisees. Progress in this area would go a long way toward addressing the concerns raised by technical women around supervisory feedback, communication, receptivity, and responsiveness.

Fairness and Voice

Another area of concern that emerged from the data was the topic of fairness and voice. As Figure 3 (see page 13) indicates, women in technical roles were consistently more negative than others on the four measures of fairness and voice. Fewer than one-half—49 percent—of women in technical roles—compared to 57 percent of women in non-technical roles, 54 percent of men in technical roles, and 62 percent of men in non-technical roles—agreed that management decisions regarding employees were usually fair. Similarly, 54 percent of women in technical roles—compared to 58 percent of women in non-technical roles, 61 percent of men in technical roles, and 64 percent of men in non-technical roles—agreed that management trusted the judgment of employees at their occupational level.

Fairness and Voice: A Primer

What does fairness mean? Procedural fairness pertains to people's perceptions about how fairly decisions are made. Addressing employees' perceptions of procedural fairness can benefit companies for a number of reasons:

- **Fair procedures lead to positive attitudes about decisions.**

Individuals who see the decision-making process as fair are more likely to be satisfied with the decision than those who view a procedure as unfair. Notably, a number of studies show that this happens even if an unfavorable outcome results from the decision.¹⁷

- **People evaluate fairness based on a number of tenets.¹⁸**

To determine whether a procedure is fair, people often assess different pieces of information.

- Being given the opportunity to participate and have a say (voice) in the decision-making process leads to perceived fairness.
- Procedures that benefit the decision-makers more than others lead to perceived unfairness.
- The ability to challenge and/or voice one's concern about a decision¹⁹ leads to perceived fairness.

- **Fair procedures lead to trust and positive experiences with workgroups, authorities, institutions, and rules.²⁰**

When treated fairly, employees are more likely to trust not only the rules, but also the people who make those rules. Trust leads to more positive attitudes about leadership, workgroups, and the organization

¹⁷ Organizational fairness research consistently finds that individuals' evaluations of *how* decisions are made are often distinct from their evaluations of the *outcome(s)* of those decisions. See Jerald Greenberg, "Organizational Justice: Yesterday, Today, and Tomorrow," *Journal of Management*, vol. 16, no. 2 (1990): p. 399-432. Evaluations of what constitutes a fair procedure are based on different elements, such as following consistent rules, avoiding bias, and making decisions based on accurate information. See G.S. Leventhal, "What Should Be Done With Equity Theory? New Approaches to the Study of Fairness in Social Relationships," in K.J. Gergen, M.S. Greenberg and R.H. Willis, eds., *Social Exchange: Advances in Theory and Research* (New York: Plenum Press, 1980): p. 27-53.

¹⁸ Robert Wharton, Paula Potter, and Linda E. Parry, "Keeping the Faculty: Issues of Socialization, Justice, and Commitment to the Workplace," *Journal of Behavioral and Applied Management*, vol. 6, no. 1 (2004): p. 4-20. Within this context, it is important to note that people are often not (consciously) aware of the types of information they use to decide whether a procedure is fair. These decisions are often "snap" judgments about the situation.

¹⁹ *Ibid.*

²⁰ T.R. Tyler and E.A. Lind, "A Relational Model of Authority in Groups," in M. Zanna, ed., *Advances in Experimental Social Psychology*, vol. 25 (New York: Academic Press, 1992): p. 115-192.

as a whole. Notably, work relationships based on trust are essential to creating an inclusive work environment.

- **Fair procedures lead to higher job commitment,²¹ satisfaction,²² and performance.²³**

People appreciate being involved in decisions that affect them directly, even when it means simply voicing their opinions. Participation in developing a procedure leads to a greater degree of:

- Commitment to the rules and procedures.
- Job satisfaction.
- Organizational commitment.
- Cooperative behavior.²⁴
- Energy and motivation to perform based on the decisions that were made.²⁵

- **Procedural fairness influences employees' perceptions of advancement opportunities within their organizations.²⁶**

It should come as no surprise that employees who believe their companies employ unfair procedures also question the ways advancement decisions are made within their organizations. Women are especially likely to view lack of advancement opportunities as a reason to leave their organizations.

Women are especially likely to leave when:

- Promotion decisions are made based on stereotypic bias about women's abilities rather than on women's actual performance.²⁷
- Women have no say in promotional decisions and hence do not expect their opportunities to change in the future.

In either case, organizations end up losing talented women to other organizations that allow women's voices to be heard.

- **"Voice" is a critical component of employees' perceptions of fairness.²⁸**

Research on organizational fairness finds that opportunity to have a say in decision-making processes is particularly important to perceptions of fairness. Employees who are allowed to "voice" their opinions are more likely to perceive procedures as fair. Recent investigations indicate that being able to challenge a decision or voice concern about a decision that has already been made also influence perceptions of fairness and lead to more satisfaction with decision-making processes.

²¹ D.R. Avery and M.A. Quinones, "Disentangling the Effects of Voice: The Incremental Roles of Opportunity, Behavior, and Instrumentality in Predicting Procedural Fairness," *Journal of Applied Psychology*, vol. 87, no. 1 (2002): p. 81-86. M.A. Konovsky, "Understanding Procedural Justice and Its Impact on Business Organizations," *Journal of Management*, vol. 26, no. 3 (2000): p. 489-511.

²² B.H. Sheppard, R.J. Lewicki, and J.W. Minton, *Organizational Justice: The Search for Fairness in the Workplace* (New York: Lexington Books, 1992). Konovsky.

²³ R.H. Moorman, "Relationship Between Organizational Justice and Organizational Citizenship Behavior: Do Fairness Perceptions Influence Employee Citizenship?" *Journal of Applied Psychology*, vol. 76 (1991): p. 845-855.

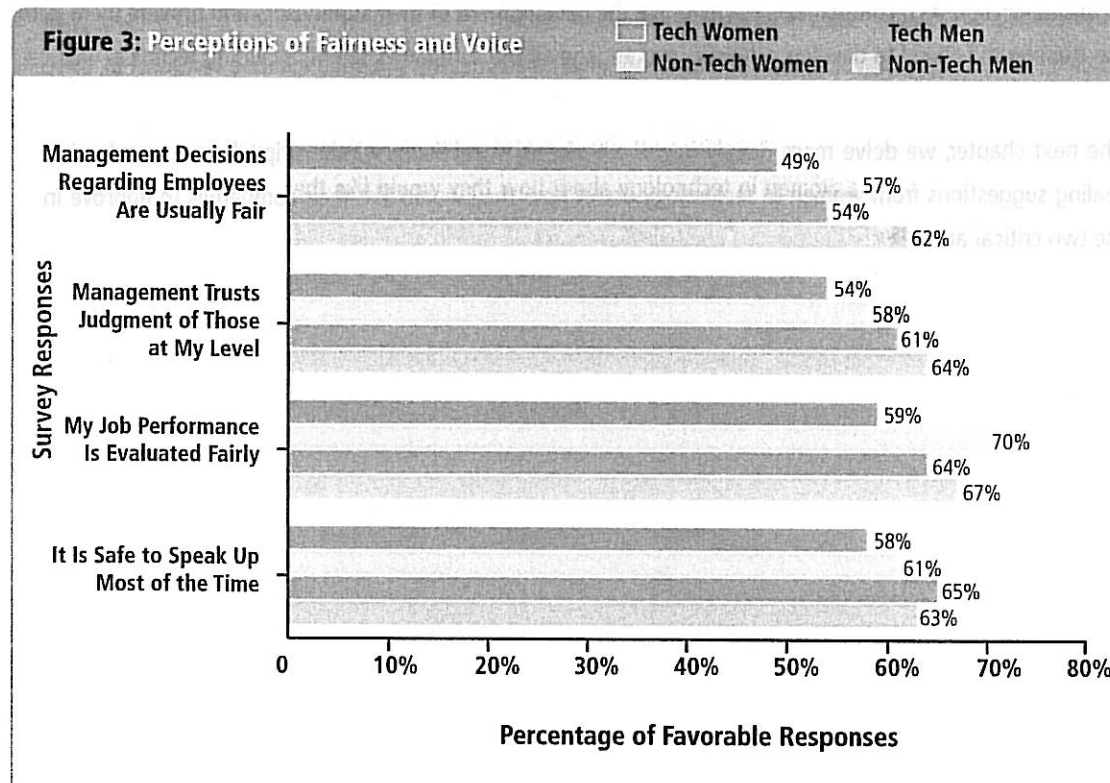
²⁴ Rhona Rapoport, Lotte Bailyn, Joyce K. Fletcher, and Bettye H. Pruitt, *Beyond Work-Family Balance: Advancing Gender Equity and Workplace Performance* (San Francisco, CA: Jossey-Bass, 2002).

²⁵ P. Herriot, W.E.G. Manning, and J.M. Kidd, "The Content of the Psychological Contract," *British Journal of Management*, vol. 8, no. 2 (1997): p. 151-162.

²⁷ E.R. Auster, "Professional Women's Midcareer Satisfaction: Toward an Explanatory Framework," *Sex Roles*, vol. 44 (2001): p. 719-750. E.R. Auster and K.L. Ekstein, "Professional Women's Mid-Career Satisfaction: An Empirical Exploration of Female Engineers," *Women in Management Review*, vol. 20 (2005): p. 4-23.

²⁸ Wharton et al.

Perceptions of fairness in performance evaluations were slightly more positive than perceptions of fairness of management decisions and trust of employee judgment. Fifty-nine percent of women in technical roles—compared to 70 percent of women in non-technical roles, 64 percent of men in technical roles, and 67 percent of men in non-technical roles—responded that their job performance was evaluated fairly. With respect to voice within their companies, 58 percent of women in technical roles—compared to 61 percent of women in non-technical roles, 65 percent of men in technical roles, and 63 percent of men in non-technical roles—agreed that it was safe to speak up in their companies most of the time.



As with measures of supervisory satisfaction, the data clearly indicated that women in technical roles were least satisfied with certain elements of their workplaces relating to fairness and voice. If employers do nothing to correct perceptions of mistrust or unfairness within particular departments, business units, or companies overall, they take critical business risks. Indeed, inhospitable work environments have negative consequences for organizations and employees alike.

SUMMARY

Data presented in this chapter clearly indicated that companies have made significant progress in terms of their efforts to engage women in high-tech companies and improve women's experiences in the high-tech workplace. In most of the substantive areas evaluated here, no differences existed between women and men employees in terms of their satisfaction with their jobs or their employers. Despite this progress, the Towers Perrin-ISR survey data also clearly indicated that technical women were less satisfied than other employees with their supervisory relationships and with their companies' approaches to fairness and voice.

It is well-known that high-tech companies have often failed to train supervisors adequately—particularly those whose advancement into supervisory roles may have been due to their technical expertise rather than managerial capabilities. Many aspects of the issues related to supervisory relationships, fairness, and voice that were raised by employees surveyed here could be addressed effectively with high-quality training.

A fundamental driver of engagement within the technology sector is continuous development. While technical training and development is critically important, people development and talent management are also essential to business. High-tech companies must embrace the development of their supervisors and provide them with the training they need to develop, advance, and engage all the company's talent, including technical women.

In the next chapter, we delve more deeply into the topics of supervisory relationships, fairness, and voice, revealing suggestions from women in technology about how they would like their companies to improve in these two critical areas.



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Findings at a Glance

- **Women working in technical roles and/or for high-tech companies said that there were several steps their supervisors could take to improve the supervisor-supervisee relationship, including:**
 - Communicating openly and directly with supervisees.
 - Providing regular, performance-related feedback.
 - Providing access to more challenging assignments.
 - Implementing stronger career- and goal-planning processes.
- **Women working in technical roles and/or for high-tech companies said their companies could enhance perceptions of fairness and voice by taking the following steps related to equal opportunity:**
 - Advancing and promoting more women.
 - Ensuring diverse corporate leadership.
 - Accepting diverse individual working styles.

Based on the Towers Perrin-ISR data, Catalyst launched an online survey of women to gain additional insight into the two areas where further improvement was needed: supervisory relationships and fairness and voice. We review findings from the online survey here.

SUPERVISORY RELATIONSHIPS

Quantitative findings from the online survey of women in technology were comparable to those found in analyses of the Towers Perrin-ISR data, although women in the online sample emerged as more positive on a couple of supervisory measures. As shown in Table 1, women in the online sample expressed similar levels of satisfaction on three measures of supervisory relationships as women in technical roles in high-tech companies surveyed by Towers Perrin-ISR. These measures included: supervisors' availability; supervisors' responsiveness to suggestions; and supervisors' communication skills. However, women in the online sample were more likely than women in the Towers Perrin-ISR sample to say that their supervisors were receptive to suggestions and that their supervisors provided regular feedback.

Table 1: Supervisory Satisfaction: Two Samples

Question	Catalyst Online Survey	Towers Perrin-ISR Survey
Supervisor Available When Needed	72%	69%
Supervisor Responsive to Suggestions	64%	65%
Supervisor Communicates Well	64%	66%
Supervisor Receptive to Suggestions	77%	66%
Supervisor Provides Regular Feedback	60%	52%

Voices of Women: Suggestions for Improving Supervisory Relationships

As part of the online survey, Catalyst asked women working in technology about ways in which supervisors could act to improve relationships with their direct reports.²⁹ Specifically, we asked women in technology the following open-ended question: *What could your supervisor do to increase your satisfaction with the supervisor-supervisee relationship?*

Women responding to the survey offered a variety of ways in which supervisors could act, but two emerged as particularly salient. The most often mentioned area for improvement was around supervisors' communication and feedback. Respondents stated that they wanted their supervisors to communicate clearly, openly, and directly with them, as well as improve communication skills. As one woman noted:

My supervisor doesn't know how to limit the information he communicates to the organization, and so he often gives us his opinion of how things should be rather than how they actually are. It can create confusion and uncertainty within the group. He will also have a conversation with one person, make a decision, and fail to communicate it to the rest of us. It makes others feel left out of the decision-making process...

—Woman in a non-technology company, technical role

Other respondents focused on performance-related feedback, as this woman did.

I have regular one-on-one meetings, but they don't focus only on performance. I would like them to do so more often.

—Woman in a high-tech company, technical role

Likewise, another respondent said:

[My supervisor could improve our relationship by] offering constructive feedback about my

²⁹ For additional details regarding the survey and sample, please see Appendix 1.

performance. Too often I feel that our meetings are focused in on what I'm not doing right, never focusing in on what I am doing well or what I can do to improve.

—Woman in a non-technology company, technical role

By monitoring and improving the flow of information and by having open, direct conversations with employees about their performance and ways to improve their performance, supervisors can enhance women's satisfaction with the supervisor-supervisee relationship.

A second, related area that women in technology suggested as an area for improvement with respect to their supervisors was access to more challenging assignments and stronger career and goal planning. Respondents expressed the opinion that their supervisors should offer them the following.

- More direction within the organization
- Greater visibility
- More stretch assignments

The following quotations illustrate these points.

I would like to be involved with more projects than I am currently involved in; I feel that I am being underutilized. I would prefer my supervisor give me an opportunity...to expand my skill sets and my responsibility at work.

—Woman in a non-technology company, technical role

She [my supervisor] never nurtures my career

—Woman in high-tech company, technical role

Survey respondents wanted their supervisors to engage more actively and more fully in their career development. This engagement could range from providing direct reports with additional responsibilities and with high-visibility assignments to providing greater guidance with respect to career-path opportunities within the organization. By building stronger goal-planning and career-planning systems and working with employees to develop their careers more fully, supervisors help to create trust, build loyalty, and enhance satisfaction among their direct reports.

FAIRNESS AND VOICE

The second area of concern that emerged among women in technical roles in high-tech companies centered on perceptions of fairness and voice. These perceptions are particularly important to address, as studies have indicated that employees who perceive their work environments or work procedures as unfair experience lower job satisfaction, lower levels of commitment, and lower performance appraisals.³⁰ Here, quantitative

³⁰ See, for example, Avery and Quinones; Konovsky; Sheppard et al.

findings from the online survey of women in technology were substantially similar to those found in the Towers Perrin-ISR analyses. Table 2 indicates that women in the online sample were closely aligned in terms of their perceptions of fairness and voice with women in technical roles in high-tech companies surveyed by Towers Perrin-ISR.

Question	Catalyst Online Survey	Towers Perrin-ISR Survey
Management Decisions Regarding Employees Are Usually Fair	53%	49%
Management Trusts the Judgment of Those at My Level	58%	54%
My Job Performance Is Evaluated Fairly	59%	59%
It Is Safe to Speak up Most of the Time	63%	58%

Voices of Women: Suggestions for Improving Organizational Fairness and Voice

Catalyst's online survey solicited from women action steps companies could take to enhance perceptions of fairness among employees and create environments where employees feel their voices are heard. When asked what their companies could do to enhance equal opportunity, women enumerated fair treatment in the following three areas as being especially important.

- Advancement and promotion
- Representative leadership
- Acceptance of diverse individual styles

As detailed below, responses in these three specific areas of fairness and voice indicated that women in technology want a level playing field—one in which individuals are given confidence that they can compete successfully regardless of their gender, race/ethnicity, or working style.

With respect to advancement, women wanted their companies to know that the paucity of women at higher corporate ranks was stark and notable. As one respondent phrased it:

I think if [management] saw in hard numbers the salary and promotion differentials between white men and everyone else, they would be shocked.

—Woman in a non-technology company, technical role

Other women agreed with this sentiment.

Often, positions are created and people [are] identified for them and promised those positions. Then the job is posted only due to formality. Essentially, the position is already filled before it's even posted.

—Woman in a non-technology company, technical role