

Benchmarking Women's Leadership

in the United States



UNIVERSITY *of*
DENVER

COLORADO WOMEN'S COLLEGE

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XIV. The Status of Women

in Leadership in Individual Sectors

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The technology industry influences a significant portion of our everyday lives, and almost every business in the 21st century involves technology. Because technology is a dynamic and fast-paced industry, there are many opportunities for growth and advancement — an ideal environment for women hoping to advance and attain leadership roles. In addition, computer and mathematic occupations had one of the highest mean wages in 2011 at just under \$95,000 annually (BLS 2011). Yet technology is a male-dominated field, with women comprising 25 percent of computer and mathematical occupations and 13.6 percent of architecture and engineering occupations (Catalyst 2012).

Among the top ten Fortune 500 technology companies, women comprise 30 percent of chief executive officers, 9 percent chief information officers, 17 percent executive officers, and 22 percent of boards of directors. On average, women comprise 19.5 percent of all leadership roles in the technology sector.

While women's overall leadership participation in technology is less than 20 percent, this is not representative of the contributions of women in the industry. For example, the number of technology patents awarded to women has experienced a 25-fold increase since the 1980s, while the sector experienced only a 9-fold increase (Ashcraft 2012).

Women comprise 20% of all leadership roles in the technology sector.

Women in Technology

According to a 2011 Forbes study, which used data gathered from the U.S. Department of Labor, nine out of ten of the fastest-growing jobs require math or science training (Forbes 2011). The same study indicated that three of the top ten best-paying jobs for women are in the technology field and have some of the narrowest wage gaps among all professions (Goudreau 2011).

More women graduate now with high-tech degrees than in years earlier. Yet some studies indi-

“I entered the workforce believing that my generation was going to have equal responsibility and equal opportunity. And it didn't work out that way.”

— Sheryl Sandberg, COO
Facebook

cate that the number of women working in high tech fields has actually been stagnant or decreasing since the 1990s, even while the number of high-tech jobs has steadily increased. One explanation is that women leave the high tech industry after only a few years into their careers (Stock 2011).¹

¹ Additionally, the technology sector is composed of a large number of start-ups, who may erroneously be less concerned with diversity than larger established firms resulting in fewer opportunities for women (Cassery 2012).

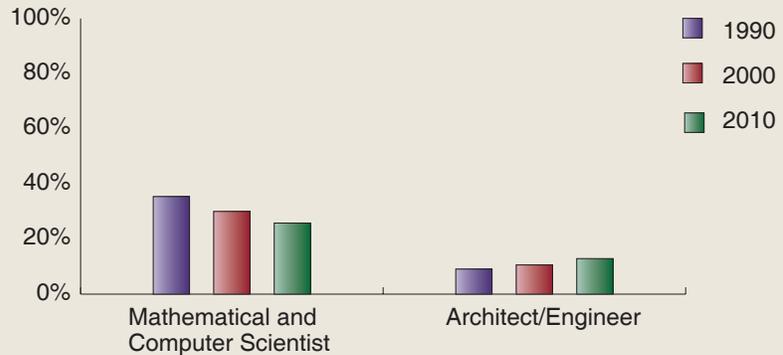
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To illustrate, a 2011 study from the U.S. Department of Commerce noted that women with a degree in science, technology, engineering, or math (STEM) are less likely to end up working in a STEM career than men with the same degree (Beede 2011). In fact, one in three women with a STEM degree leaves the industry workforce within the first two years, and “slightly more than half of all women in the industry leave mid-career” (Stock 2011). Among men and women with a STEM degree, about 40 percent of men work in a STEM field as opposed to 26 percent of women (Beede 2011). After leaving the industry, women are more likely to end up in healthcare or education careers, which are typically much lower paying.

As evidenced in the chart to the right, all ethnic groups have increased the number of women earning degrees in science and engineering except for two. The number of African-American and white women earning science and engineering degrees fell by .3 percent and 1.9 percent respectively between 2005 and 2010.

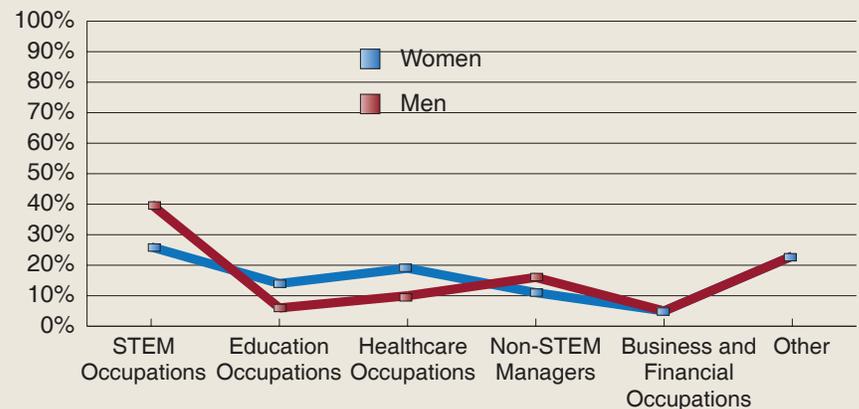
Research indicates that women leave high-tech industries for a variety of different reasons, including a lack of role models after they enter the technology workforce, a sense of isolation when working in a male-dominated field, and a perceived inability to advance their careers (Stock 2011). This presents a particular concern for women of color, who have even fewer peers. The Anita

Percentage of Women in Science and Technology Fields 1990-2010



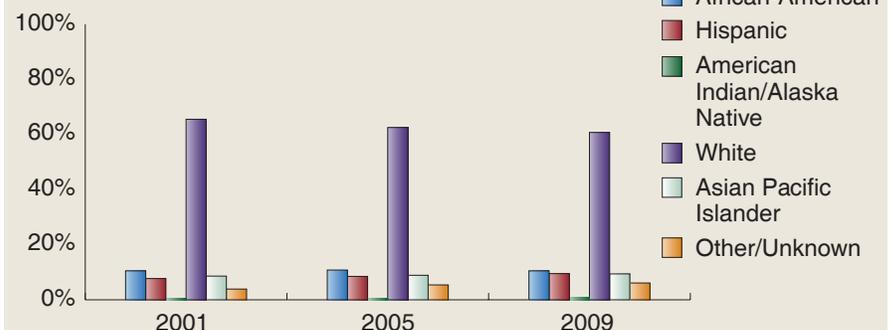
(Catalyst 2012)

STEM Degree Workers & Occupations by Gender 2011



(U.S. Department of Commerce 2011)

Science and Engineering Degrees Awarded to Women By Race/Ethnicity



(Bureau of Labor Statistics and National Science Foundation 2009)

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Borg Institute released a report in 2011 that details the lack of opportunities for women of color in technology:

- Among those earning computer science bachelor's degrees, African-American women earn less than five percent, Hispanic women earn less than two percent, and Native American women earn less than one percent.
- African-American women in the technology field make up 4.6 percent of entry-level jobs, but only 1.6 percent of high levels jobs (when based upon entry, mid, and high levels within technical positions) (Simard 2009, p. 7-8).
- Hispanic women in the technology field make up 4.1 percent of entry-level jobs, but are virtually absent from high-level jobs (Simard 2009, p. 8).

Research has also indicated a lack of female role models, as women are considering degrees in the science and technology field, which again, presents a greater obstacle for women of color (Simard 2009, p. 2-4).

Women and Patents

Patents are an important component of the technology sector. Successful patents serve as a strategy in growing and expanding tech companies (Earnest 2003). Evaluating women's success in obtaining patents signifies an aspect of women's leadership in the technology sector. The National Center for

Women in Information Technology has been tracking the number of patents awarded to women since the 1980s. Women-invented patents are less than 10 percent of all patents, yet the number has significantly increased over the last 30 years.

Since 1980, women's patents have increased 25-fold, surpassing the overall growth rate of tech patents during the same time period (7.5-fold increase) (Ashcraft 2012).

Women's participation and success in the technology field is resulting in an increased number of patented inventions. The number of women involved in patents has steadily increased since the 1980s (NWCB 2012, p. 27-31). Additionally, there is no difference between female patent applicants' success to male applicants (NWCB 2012, p. 27). Both women and men obtain successful patents at the same rate.

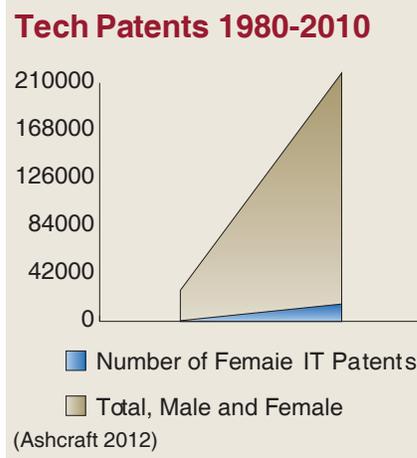
One possible explanation for the increasing number of patents can be attributed to women's

increased entrepreneurial activity. Women are starting their own businesses to counteract a lack of career advancement opportunities in large technology companies (Decker 2012). Three of the top four fastest growing female-awarded patents are in the high-tech fields of data processing, electrical computers, and digital processing systems (NWBC 2012).

Women in Leadership

Among the top ten technology companies in the Fortune 500, three women or 30 percent hold the position of CEO, one of whom is a woman of color. Among the companies with a female CEO, they also have more women in leadership roles by an average rate of 30 percent. In comparison, companies with a male CEO have a female executive leadership rate of 8.9 percent.

In the top 10 tech companies, those with a female CEO have 21% more women in leadership roles.



While certain highly successful tech companies like IBM and Google have a higher than average percentage of women at the top, this does not reflect the industry trend. In one study conducted by the Harvey Nash Group, 30 percent of those polled from 450 U.S. technology companies report that their own IT departments have zero

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women in management — yet only half of the same respondents believe that women are underrepresented in their IT department (Zieminski 2012). Therefore, the fact that several studies reveal that women in leadership and executive roles have been shown to positively impact a company’s financial performance (Pine 2011) would have little impact on an industry where many believe that women — although absent — are not underrepresented.

The number of women in chief information officer (CIOs) positions at U.S. companies has been incrementally decreasing since 2010. In 2012, only 9 percent of CIOs are female, down from 11 percent in 2011 and 12 percent in 2010 (Zieminski 2012).

The number of women in chief information officer positions at U.S. companies has been incrementally decreasing since 2010.

Women are well represented despite the fact that a small number of women earn degrees in technology-related fields. Women over the age of 25 hold a mere 2 percent of all bachelor’s level degrees in engineering and 1.5 percent of all computer and information science bachelor’s degrees (Catalyst 2012).

CEO Tech Salaries

Women’s salaries are often significantly less than those of their male counterparts.

Female CEOs earn \$17.67 million of the total \$65.62 million. The average CEO salary for females in this industry’s top ten companies is \$5.90 million; the average male compensation for the same role is \$8 million.

Board of Directors

On average, women hold 22 percent of board of director positions. Not surprisingly, the majority of female board positions reside where the CEOs are women. When a male holds the CEO position, women comprise approximately 19 percent of the board positions. When there’s a female CEO, approximately 30 percent of board positions are held by women. Xerox, HP and Google boast the highest percent of female board members.

In conclusion, the technology

Females in Leadership at Top 10 Tech Companies 2012

Company *	CEO	# Executive Positions	# Females in Exec Positions	% Females in Exec Positions	% Females in Exec Positions for Companies with a Female CEO
Hewlett-Packard (11)	Meg Whitman	12	3	25.0%	25%
International Business Machines (18)	Virginia Rometty	16	5	31.3%	31.0%
Apple (35)	Timothy D. Cook	12	0	0.0%	
Microsoft (38)	Steve Ballmer	16	1	6.3%	
Dell (41)	Michael S. Dell	11	1	9.1%	
Intel (56)	Paul S. Otellini	40	6	15.0%	
Cisco Systems (62)	John T. Chambers	13	3	23.1%	
Google (92)	Larry Page	6	0	0.0%	
Oracle (96)	Lawrence J. Ellison	26	6	23.1%	
Xerox (121)	Ursula Burns	33	11	33.3%	33.3%
Average				16.6%	30%

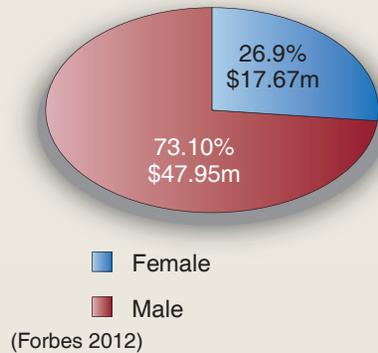
(Compiled from each company’s website 2012)

*The number in parentheses beside each company’s name is their ranking on Forbe’s Fortune 500 List.

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industry is dynamic, offering numerous opportunities for entrepreneurs to prosper even in the midst of an economic downturn.

Top 10 Technology Companies' CEO Compensation 2012



While women's representation in high-tech fields is better than the overall representation of women in all sectors, research points to a recent downward trend where women are stagnant or losing ground. Further research should be conducted to determine the reasons for the declining trends among women in the high-tech workforce, and therefore their executive participation within the industry.

CEO Salaries at Top 10 Tech Companies 2012

Company	CEO	CEO Annual Pay (millions)
Hewlett-Packard (11)	Meg Whitman	\$2.77
International Business Machines (18)	Virginia Rometty	\$10.88
Apple (35)	Timothy D. Cook	\$14.82
Microsoft (38)	Steve Ballmer	\$1.38
Dell (41)	Michael S. Dell	\$4.35
Intel (56)	Paul S. Otellini	\$9.15
Cisco Systems (62)	John T. Chambers	\$3.36
Google (92)	Larry Page	\$0
Oracle (96)	Lawrence J. Ellison	\$14.89
Xerox (121)	Ursula Burns	\$4.02
Total		65.62

(Forbes 2012)

*Google's CEO, Larry Page, accepts only \$1 as his annual compensation. He owns 80,000 shares of Google stock and has a net worth of \$18.7 billion (Forbes 2012).

Females in Leadership at Top 10 Tech Companies 2012

Company	# Board Position	# Females in Board Positions	% Females in Board Positions	% Females on Board Positions with Female CEO
Hewlett-Packard (11)	11	3	27.3%	
International Business Machines (18)	14	3	21.4%	
Apple (35)	8	1	12.5%	
Microsoft (38)	11	2	18.2%	
Dell (41)	12	2	16.7%	
Intel (56)	10	2	20.0%	
Cisco Systems (62)	14	3	21.4%	
Google (92)	10	3	30.0%	
Oracle (96)	12	2	16.7%	
Xerox (121)	10	4	40.0%	40%
Average/Total			22.4%	29.8%

(Compiled from each company's website 2012)

*The number in parentheses beside each company's name is their ranking on Forbes's Fortune 500 List.

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Recommendations for Closing the Leadership Gap

Areas of Future Action

- Promote education in the science and engineering fields to girls at a younger age, and develop programs geared towards girls and women who demonstrate an interest and talent in science and technology.
- Offer greater opportunities for equal pay.
- Encourage inclusivity and diversity in the workplace. Women, and particularly women of color, are struggling to find their niche within the technology workforce. When there is a lack of diversity, women tend to feel isolated and look for other jobs, sometimes outside of their area of education. This contributes to the declining number of women in the technology field.
- Develop mentoring and sponsorship programs to promote women into leadership roles. Using Xerox, HP, and IBM as examples, research shows that women in CEO positions increase the number of women in other executive positions.

- Include women in company patent groups, and ensure that talented women are represented and their contributions recognized.

Areas of Future Research

- More must be done to understand the factors that influence young women's degree choices to generate more interest for science and engineering degrees. Ensuring more young women consider technology and science degrees can change the demographics of the workforce.
- Understand the reasons why women leave the technology workforce, and make a concerted effort to create a more inclusive environment for women.
- Research the reasons for the low number of women involved in technology start-ups.
- Further study women's patent activity, particularly how it corresponds to future entrepreneurial activity.

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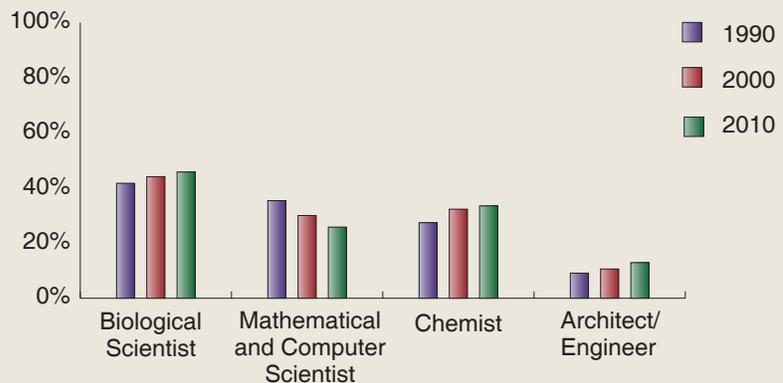
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Appendix A

Data on biological scientists and chemists is included here to show the similarities between women in science and women in technology. It is significant that although the fields are similar in terms of educational requirements and opportunities for growth as far as advancement and compensation, there are more women in the science fields than the technology fields.

Percentage of Women in Science and Technology Fields 1990-2010



(Department of Labor Statistics 2010; AAUW 2010)



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