

**OVERCOMING THE GENDER GAP:
WOMEN ENTREPRENEURS
AS ECONOMIC DRIVERS**

Lesa Mitchell
Ewing Marion Kauffman Foundation

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This paper explores the intersection of two issues that often are thought of separately: the need for sustained economic recovery in the United States, and the status of women's entrepreneurship. Despite recent gains, women still lag behind men on key measures of startup activity, and their firms tend not to grow or prosper nearly as much. Typically, this is seen as a "women's" issue. It is framed as a problem to be dealt with for the benefit of women, in the interest of gender equality. In fact, it is an economic issue that affects everyone.

Research has shown that startups, especially high-growth startups, are the keys to job creation and leadership in new industries. With nearly half of the workforce and more than half of our college students now being women, their lag in building high-growth firms has become a major economic deficit. The nation has fewer jobs—and less strength in emerging industries—than it could if women's entrepreneurship were on par with men's. Women capable of starting growth companies may well be our greatest under-utilized economic resource.

And what would it take to develop the resource more fully? We at the Kauffman Foundation hope this paper will help to stimulate new thinking on the subject. The following themes run throughout:

- While every entrepreneur, big or small, helps the economy, the emphasis here is on those who start high-growth companies, which help the most.
- More women's startups need to be aimed at growth targets far above the oft-cited benchmark of \$1 million in revenues. There is a particular need for innovative, transformative new firms that can grow to serve global markets.
- Many (though not all) high-growth firms are built around new science and technology. With more women than ever entering these fields, the upside potential for women's tech startups is huge.
- What it takes to succeed in business is not necessarily the same as what it takes to succeed in *starting* a business. While women have made great strides in breaking through the proverbial "glass ceiling" to advance to high rank within corporations, few have made similar strides in breaking out laterally—through what might be called the "glass walls"—to start their own high-growth firms.
- "What it will take" to have more high-impact women entrepreneurs includes all of the following: what women themselves might need to do, what men might do, and what might be done collectively in the way of public policies or private initiatives.
- Finally, to reiterate the main point: It is essential to see women's entrepreneurship as an economic issue, not a gender-equity issue. When new companies and industries flourish, everyone benefits. And the returns will increase when more women contribute to the process by bringing their ideas to market and building high-growth firms around them.

What follows is in five sections. We start with a closer look at a topic that may seem obvious: the role of jobs in a healthy economy. Next, we consider the new research that reveals why startup companies are central to job creation. From that basis, we then move directly into women's entrepreneurship—documenting the current gender gap, debunking some common myths and misconceptions, and exploring what can be done to cultivate high-growth startups among women.

WHY JOBS MATTER

Job creation is only one measure of economic vitality, but it is crucial for several reasons. Jobs provide a living for people, and when there are not enough of them, as in recent years, the society and economy take multiple hits. The unemployed suffer. Demand for social-welfare payments goes up, putting an added strain on public budgets, while demand for goods and services in the marketplace goes down, putting a damper on growth. Conversely, when jobs are being created at a strong rate, these dynamics are reversed and we get an upward spiral.

Also, since most job holders do useful work, job creation is tied to wealth creation—for the simple reason that when more people are put to work, more work gets done. This point requires a bit of explaining, as an exception comes to mind right away. Certainly it is possible for a given company to get more work done without adding jobs, or even while eliminating jobs. That is called raising productivity, and we as a society are constantly coming up with ways to raise productivity.

For instance, this paper you are reading did not need to be clean-typed by a professional typist. The huge “typing pools” once found in big companies now are gone because of personal computing. Nor is new technology the only source of productivity gain. Factories' modern continuous-improvement methods may sometimes require automated equipment, but mostly they are grounded in re-thinking how to handle the flow of work, so as to cut down on wasted effort and mistakes. They've enabled many firms to produce more with fewer workers and supervisors.

Older, larger firms in particular can raise both their earnings and their output while cutting jobs. One way is by trimming layers of bureaucracy that have accrued over the years. Some big companies grow by acquiring other companies, and they may seek economies of scale by consolidating the engineering or administrative staffs. Or, a big firm may exit a struggling line of business—an example would be an auto company dropping a brand or model that doesn't sell strongly—in which case some of the division's employees (but usually not all) are shifted into building up the company's healthier lines.

Job-reducing steps like these are common and necessary. Businesses that do not keep pace with rising productivity are liable to destroy jobs anyway by falling behind the field in cost and performance. But for a nation as a whole, the key is *net job creation*. The economy has to create more new jobs, overall, than it loses.

Net job creation keeps the upward spiral going. People displaced by productivity gains can easily find work elsewhere. They are able to support themselves and contribute in new ways. (In fact, if they do innovative work, they might contribute ideas that raise

productivity even further!) Thus, the nation's wealth increases, as it did in the United States during the 1800s. Over the course of that century, productivity gains in agriculture "freed" millions of Americans from farm work. Most of them went on to prosper because emerging industries created millions more new jobs. Those leaving the farms included people like young Henry Ford, who was able to find work as a machinist—and then used that experience to start a company that triggered a new wave of rising productivity and prosperity in the early 1900s.

Without net new jobs, however, the process is short-circuited. The painful results are most evident today in some European countries and in developing countries where an initial burst of technical-industrial growth has stagnated. In these situations, high unemployment has become so chronic that even many graduates of universities and technical schools cannot get a foothold in the workplace. The chance for these young people to develop their skills and contribute their ideas is deferred and, in many cases, lost. For every jobless graduate, the country gets no economic return on its investment in education. The downward spiral takes hold.

In short, net job creation is essential. And, until recently, how it occurs has not been well understood.

WHY STARTUPS MATTER

America in modern times has generally enjoyed stronger job growth—prior to the recent recession—than have other advanced nations. Yet, confusion sets in when we try to pinpoint the source of this vitality, partly because we have tended to focus on "where the jobs are" instead of how (and when) they are created and lost.

Despite being few in number, large publicly traded firms *employ the most people*. These firms include major manufacturers, the established energy and IT companies, big financial firms and chain retailers, and more. Altogether, the so-called "big business" sector employs slightly more than half of the U.S. workforce. Over the years, this has led to economic policies and job strategies built around big firms, along with backlash urging that "small business" be given due attention as well.

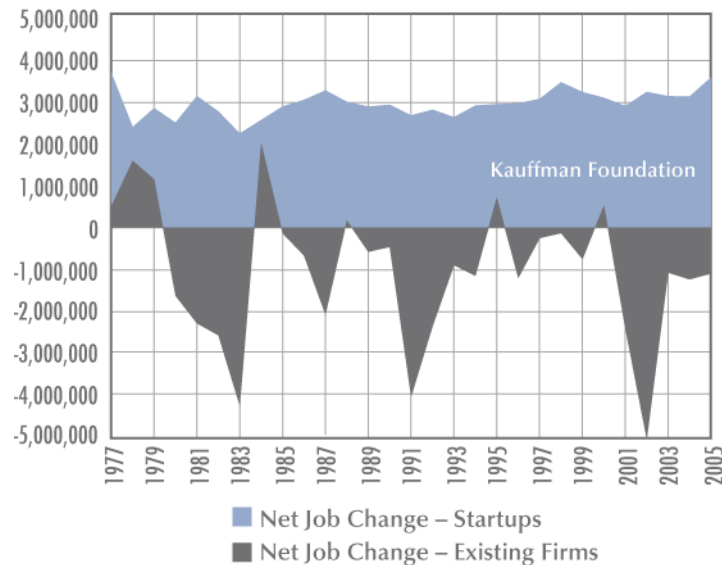
In fact, both views miss the dynamics of job creation. Not only are jobs always being created and destroyed nationwide, but any given firm, over its lifespan, can be both a net creator of jobs (when it starts or grows) and a net eliminator (when it restructures, loses business, or goes out of business).

Recent economic studies funded by the Kauffman Foundation have shed light on these dynamics.¹ Using new datasets from the U.S. Census Bureau, researchers were able to track job creation vs. job loss across the economy, *by firm age* rather than firm size. The findings are remarkable. They show that, during most years, virtually all net new jobs in the United States are created by companies in their first five years of existence—or, according to the latest study, by startups in their very first year.

It actually is not hard to see why this should be so. Since all startups are brand-new companies, all jobs they add are a net gain. (The average total was around 3 million jobs per year from 1992–2006.) Firms in their later years do plenty of hiring too, but as we

have seen, they also do plenty of cutting. The result, writes economist Tim Kane, is that, “On balance, existing firms lose more jobs than they create.”

Figure 1:
Startups Create Most New Net Jobs in
the United States



Source: Business Dynamics Statistics, Tim Kane

Kane, the author of a 2010 Kauffman paper on the subject, then combed through the data to make another crucial point. Some of the job loss in existing firms is due to “Deaths,” i.e., firms closing down. This “Death” toll is especially high for younger firms, as many startups close within a few years of founding. Therefore, it is important that a fair number of the “Survivor” startups keep on growing to help offset the losses—and, as Kane notes, “Among Survivors, so-called gazelle firms [the kind that grow quickly to large size] are certainly more important still.”

The statistical studies by Kane and others confirm what many of us already have observed. Countries and regions that rely on existing, mature industries eventually go into economic decline, with chronic net job loss. In some places, startups help to keep the economy afloat. And the countries and regions that truly thrive have more than high startup rates: They keep turning out gazelles, which grow to become the next large-scale employers as older companies level out or fade away.

This was the formula behind America’s information-technology boom in the last half of the twentieth century. Not only did the country produce many more startups per capita than Europe or Japan did, it consistently produced startups that grew to flagship status: the now-defunct Digital Equipment Corp. in the 1950s, Intel and AMD in the 1960s, Microsoft, Apple and Oracle in the ’70s, Cisco Systems and Dell in the ’80s, and Amazon and Google in the ’90s, for example. In addition to such new giants, many other IT startups grew to be sizable niche firms, employing hundreds to thousands of people each and turning out needed items like specialty software and electronics.

Although some older companies, including IBM and Hewlett-Packard, played central parts in the emerging IT industries, no one imagines that these industries could have taken off as profusely as they did just from the existing corporate base. The ongoing series of new growth companies provided the highly adaptive economic infrastructure required.

The question we now face is how to re-ignite economic expansion and job creation. With the rise of China, India, and other countries, innovation is becoming more globalized than ever. It is hard to predict what the next big emerging industries will be, but in order to have a significant share (let alone the lead) in any of them, each country, including ours, may have to do a better-than-ever job of mustering its capabilities for high-growth entrepreneurship. This is where women can help immensely.

The infographic on the following page compiles data from several recent studies that illustrate the entrepreneurship gender gap.ⁱⁱ

The Entrepreneurship Gender Gap

Room for Improvement

Numerous statistical studies in the United States tell the same story: There is room for improvement in women's entrepreneurship, with vastly more room as one goes up the scale into building growth companies.

Here is quick summary of some major recent findings:

WOMEN

MEN

0.24%

0.44%



Entrepreneurial activity, by gender, as percentage of the working-age population involved in starting a business in a given month, on average
[Source: Kauffman Index of Entrepreneurial Activity]

35.3%

64.7%

Share of total entrepreneurial activity
[Source: Kauffman Index of Entrepreneurial Activity]



36%

44%



Employer firms (those that create jobs for people other than the founder), as percentage of startups
[Source: Kauffman Firm Survey]

19.8%

32.8%

Percentage of firms with more than \$100,000 annual revenue, three years from starting
[Source: Kauffman Firm Survey]



1.8%

6.3%

Percentage of firms with more than \$1 million revenue
[Source: American Express OPEN Report]

4.12

4.06



Significance of the published research by life science faculty of each gender (measured by "Journal Impact Factor," where higher score = more significant)
[Source: Gender Differences in Patenting]

5.65%

13%

Percentage of above faculty of each gender who obtain patents on their research, often a first step to starting a firm
[Source: Gender Differences in Patenting]



6.5%

93.5%



Percentage of above faculty of each gender who are Science Advisory Board members of high-tech firms
[Source: Gender Differences in Patenting]

One difficulty in studying women-led startup companies is that a firm may have multiple founders or owners of both genders. Various research studies deal with the problem in different ways: They count women's firms as those owned solely or "primarily" by women; they break out the mixed-ownership firms separately (or exclude them); or, they track startup activity by individuals rather than by firms. The Kauffman Index of Entrepreneurial Activity (KIEA) tracks individuals, using data from the Current Population Survey of the U.S. Census and the Bureau of Labor Statistics.

Figures from the KIEA, combined and put another way, tell us this: While women make up more than 50 percent of the U.S. adult population, and about 46 percent of the civilian workforce, they account for only about 35 percent of the people who get involved in starting businesses.

(This number agrees fairly closely with other figures, not shown in the table above, which find that of all privately held firms in the U.S, about 29 percent are "women-owned" and another 12 percent are "equally owned" by women and men.)

So women lag at the business of starting businesses overall, and the gender gap gets larger as we look at measures of growth. Most Americans who start businesses literally just go into business for themselves, as self-employed professionals or service providers of some type. Only a fraction have employer firms—companies that employ others—and that fraction is smaller for women.

In a 2007 research paper for the SBA, Erin Kepler and Scott Shane found that 14 percent of the women entrepreneurs in their sample had employer firms, versus nearly 22 percent of the men. The Kauffman Firm Survey (KFS) found higher rates for both genders, perhaps because it is drawn from the Dun & Bradstreet database, which includes only young firms that are "serious" enough to merit a credit report. But here again, a gap was found: Of the firms owned solely or primarily by women, 36 percent were employer firms, versus 44 percent for those owned solely or primarily by men. Most importantly, a shocking statistic from the U.S. Census Bureau found that the percentage of women-owned firms with paid employees only grew 7.6 percent from 1997-2007.

When we look at growth measures by revenue, the gap begins to widen. In the latest Kauffman Firm Survey, which tracked new firms three years out from their startup dates, 19.8 percent of the women's firms reported annual revenues more than \$100,000 versus nearly 33 percent of the men's firms. The average revenue of men's firms was almost twice that of women's, nearly \$120,000 versus about \$60,000.

In this range, we are still dealing with extremely small startups. Many are made up of the owner plus a helper or two, and a sizable number appear to be part-time side businesses: About 17 percent of the entrepreneurs in the KFS (of both genders combined) reported working on their businesses less than twenty hours per week.

Not all firms that are small in their third year are destined to remain small, however. There may be some with growth potential that are taking a while to develop scalable products and business models and to achieve consistent earnings. This may be especially likely to happen with innovative startups, since the innovation process is highly iterative: new software spends time in development and beta testing; a new physical product may evolve through a series of prototypes. Also, it is not uncommon for innovator/entrepreneurs to work on their early-stage ideas "on the side" while holding

full-time jobs. So the question is: Are women starting a proportionate share of these types of firms, some of which will go on to have high economic impact?

The available evidence suggests that they are not. Every five years, the Census Bureau conducts its nationwide Survey of Business Owners. The SBO samples privately held, nonfarm businesses of all ages, from recently founded to many years in existence. Using SBO data, the American Express OPEN report for 2011 found that just 1.8 percent of women-owned firms had revenues more than \$1 million. The figure for men-owned firms was 6.3 percent

In public perception, the \$1 million threshold has become a sort of magic number. An article about the Amex OPEN report compared the mark to “Heartbreak Hill,” the part of the Boston Marathon where many runners hit the wall, and urged women entrepreneurs to focus on “getting over that \$1 million hump.” Women who want help with the task can turn to the New York-based nonprofit called Make Mine A Million \$ Business.

In the grand scheme of things, however, even a million-dollar business is not particularly large. Many good regional businesses reach this mark, from home improvement contractors to small law firms. And though it is a worthy goal to have every business flourish as well as it can, our focus here is on startups that could go well beyond a million in annual revenues.

These high-growth firms would, at the least, become prominent niche firms of the type described earlier. They would create jobs prolifically and serve global or national markets. Typically, they would be innovative firms, with new products and services that are widely useful—either in certain industries or in households. You might call them building-block firms because they provide new pieces that help to strengthen and expand economic capacity, feeding an upward spiral of growth all around. Many such firms are new technology companies, although they do not have to be. (FedEx, discount brokerages like Charles Schwab, and others are examples of late twentieth-century startups that have helped the nation do its business more effectively.)

How many women build high-growth companies of this caliber? To date, there have not been comprehensive studies that isolate the “true high-growth/high-impact” bracket with statistical rigor and allow for gender comparisons. But, in a sense, statistical studies are not really needed here. So few women are operating at the highest levels of entrepreneurship that one can get a feeling for how scarce they are by the informal exercise of sitting down and trying to name them.

A list of America’s high-impact women entrepreneurs would usually begin with the widely known names in entertainment and news media: Oprah Winfrey, Arianna Huffington, Tina Brown. From there, most list-makers move to women who have founded women-serving firms in industries such as fashion and cosmetics—even reaching back into the past for names like Mary Kay Ash—or, they list founders of nonprofit organizations, like Wendy Kopp of Teach For America. That is not too bad a start. A knowledgeable person could also name a number of lesser-known women entrepreneurs in, say, the nonprofit sphere. These women are making a difference in the lives of many.

But if we stick to the for-profit firms that drive job creation, growing the list becomes much harder. This is especially true in technical and scientific fields and in business services, where high-growth firms also can serve as economic building blocks. If we look

in recent years for women starting firms that might be the next Intel or Microsoft, the next Genentech or FedEx, we find practically none. It is difficult even to find women founding the equivalent of a Cadence Design Systems or a Synopsys (two niche software firms that are not household names but are vital to the IT industries).

Reaching back over the past few decades, the names of women who have founded or co-founded technology companies and grown them to global scale are few and far between. Sandra Lerner was a cofounder of Cisco Systems in 1984. Meg Whitman joined eBay as CEO in 1998, three years after its founding, and presided over its IPO. Caterina Fake was a cofounder of the firm that developed Flickr in 2004.

Beyond examples like these, a number of women have started either moderate-sized niche firms or promising but still-emerging firms in fields from software to biomedicine. Examples would include Sue Welch of Tradestone Software and Mara Aspinall of the cancer care startup On-Q-ity, two winners of the 2010 Leadership Awards from WEST, the Boston-based group Women Entrepreneurs in Science and Technology. Coming up with such names, though, truly requires us to reach—just as Ernst & Young, for instance, must often reach to find women who qualify to compete for its coveted Entrepreneur Of The Year awards. In E&Y's Western Pennsylvania region in 2011, twelve entrepreneurs won awards in various categories. The only woman was the winner in the Legacy category, a senior executive of a firm co-founded by a (male) family member in a previous generation. E&Y created the Winning Women program in 2008 to help build a pipeline for women entrepreneurs.

This year in TechCrunch, Aileen Lee—a female venture capitalist—wrote a column called “Why Women Rule the Internet.” She noted that women are the primary users of the new social-networking services such as Facebook, Twitter, and Tumblr, not to mention high-growth shopping sites like Zappos and Groupon. Ironically, there is not a single woman among the co-founders of the firms mentioned.

EXPLORING THE SCARCITY: MYTHS AND ANSWERS

Although the scarcity of women entrepreneurs is a well-known fact, not everyone sees it as an economic “problem” worth addressing. Nonprofit groups that encourage women to start high-tech firms are, for the most part, small and not very well funded by corporate philanthropies. And there are many skeptics among the general public. Some believe that if more women were starting companies, they would merely have a “replacement” effect, driving out equivalent men’s companies that have to compete for the same business.

Some skeptics argue that affirmative-action policies in government contracting, which set aside a certain share of construction or service contracts for women- and minority-owned firms, invite fraud (as when companies have figurehead owners in order to get contracts) and also invite complaints from men who feel they are being short-changed. So the objection is: Wouldn’t an increase in women’s entrepreneurship just lead to more of the same?

This view is short-sighted. Contracting policies are aimed at allocating pieces of a limited economic pie. Certainly a contract that goes to one firm cannot go to another, and if all firms are offering roughly the same types of standard goods and services, then the

situation is a zero-sum game with winners and losers. However, the economy as a whole is not a zero-sum game.

Growth companies, especially in high-tech areas, tend to be innovative and additive. They create new industries that grow the pie. We are concerned with what it would take to have women starting generative firms of this type at much higher rates than they now do. The goal is to create more jobs and a stronger new economic platform for all. The notion that getting more women involved in such activity would be detrimental is a myth, rooted in thinking that our economy cannot be larger or more dynamic than it currently is. We need to move beyond both the myth and the economic *status quo*.

As for why so few women start high-growth firms in technology fields, a common explanation is that there have not been many women working in these fields to begin with. Thus, one often hears that it will just take time and a larger “feeder stock” of high-tech women before we begin seeing more startups from them.

In some fields, this explanation may have some validity. Computing, for example, is still largely dominated by men. Figures from the National Science Foundation show that women are gaining a major presence in some disciplines. In recent years, they have earned about 60 percent of the bachelor’s degrees in the biological sciences, 41 percent of those in the physical sciences, and 35 percent in chemical engineering—but only about 17 percent of the degrees in computer science and, in electrical engineering (which includes practical applications of computing), only about 12 percent.ⁱⁱⁱ Because many startups are IT-based, the relative shortage of women in computing becomes a sore point that stands out. Thus, part of the answer to having more high-growth startups might indeed be to grow the feeder stock of women *in this field*.

Still, it is far from a whole answer. Suppose that a mere one-tenth of our best young computing experts are women, a reasonable guess at this point. Though the fraction is small, why are women not making up anything close to one-tenth of the founders of high-growth companies in IT? And what about fields that are much more heavily populated by women, such as bioscience or, for that matter, business administration? Why are we getting just tiny trickles of women’s growth startups in those fields?

We have to dig deeper for answers and, as we do, we confront a puzzling fact that first complicates the picture, then helps to explain it. *Women have risen to the top in technology-oriented corporate and university hierarchies, much more than in entrepreneurship.*

We would have no problem naming prominent women within big, already-established tech firms. Ursula Burns and Ellen Kullman are the CEOs of Xerox and DuPont, respectively; Safra Catz is president of Oracle; and women in C-level or senior executive posts abound in many big tech companies. On the academic side, MIT and Rensselaer Polytechnic Institute have women as presidents. Harvard, Yale, and Purdue are among the major research universities with women as deans of engineering; and most have women chairing departments in one or more fields of engineering or science.

The picture here is quite different than in entrepreneurship. The difficulty in list-making soon becomes deciding where to draw the cutoff line for the list, rather than searching for additional entries. This difference, in turn, suggests two conclusions:

- *There is no current shortage of highly qualified women in science and technology.* Skeptics might argue that big firms and universities tend to name women to high posts in part for reasons of gender equity, or to appear progressive—but it is hard to imagine any of these organizations entrusting their care to people who are less than fully capable. Clearly, the United States has a sizable supply of women who possess both the subject-matter knowledge and the leadership skills to run a large, tech-based operation.

Which leads us to the second conclusion:

- *“What it takes” to launch and build a high-impact tech startup is different from what it takes to advance within a corporate or academic hierarchy.*

Put another way: Women have made great strides in breaking through the glass ceiling. Yet there seem to be glass walls, as it were, that keep them from breaking out laterally—from taking academic leave to be a founder of a high-growth spinout companies or from venturing out of the big firms to start something big. Delving into the nature of those barriers, and what it would take overcome them, is our closing topic.

BEHIND THE GLASS WALLS (AND HOW TO BREAK THROUGH THEM)

It is sometimes assumed that one of the main barriers to women’s entrepreneurship is difficulty raising investment capital. A landmark study suggests that the gender gap takes root much earlier in the startup process, with women less likely than men to engage in activities that can lead to high-growth startups.

The study is titled “Gender Differences in Patenting in the Academic Life Sciences.” The authors, Waverly Ding, Fiona Murray, and Toby Stuart, all from prestigious business schools, tracked the careers of more than 4,000 life science research faculty at U.S. universities over a thirty-year period. Their most salient findings:

- The quality of women’s research seemed equal to or slightly better than the men’s, on average. (On a widely used metric called Journal Impact Factor, published research by the women scored slightly higher.)
- But, controlling for all other variables, women faculty patented their research “at about 40 percent of the rate of men.” This is a very significant narrowing of the field at one of the first major steps along the road to creating a startup company from one’s research.
- Statistics and interviews revealed further patterns that may contribute to a gap in startup creation. Women were less likely to have the connections—or make the connections—that can help scientists recognize the commercial potential of their research in the first place and then help them to commercialize it effectively.

For example, when women had research they thought might be valuable in the marketplace, they were apt to pursue the matter solely through formal university channels, such as by turning to the TTO (technology transfer office) for guidance. Going through the TTO may be necessary for legal reasons, but the process can be long and

daunting, and the guidance one obtains may not be very helpful: A TTO cannot have in-house experts on every branch of science and industry.

The men tended to take further action and to do it more directly from the start. As one woman said, “They pick up the phone” and call their contacts in private industry. Women in academic science are much less likely to have the regular exposure to industry that breeds such contacts. One of the most telling statistics from the study in this regard is that only 6.5 percent of the women sat on science advisory boards of high-tech companies. For the men, the figure was more than 93 percent.

Having the right kinds of connections and networks is vital for would-be entrepreneurs in any setting. You get highly specific advice and you meet people who know how to help you build a company. A useful question is: What would help more women develop these connections?

In general, asking useful questions is the key to progress. Other studies and statistics, too numerous to cite in detail here, indicate that the growth potential of women’s startups can be stunted in multiple ways. Women might be less inclined to “think big” when starting a company of any kind, perhaps settling for a modest consulting or service firm instead of a more innovative firm that aims for global scale. They are indeed less successful than men at raising money, on the average. More women than men may place high value on maintaining work/life balance, and some women may feel that this rules out the demands of starting a growth company. Men, consciously or not, may act in ways that discourage women from getting involved in high-growth startups—or even articulating their ideas as fully as they could.

What does *not* help, in any such case, is to assume we are seeing evidence of *innate* gender differences which cannot be changed very much. The history of modern societies has shown that typical “men’s” and “women’s” behaviors (including thought patterns and aspirations) are socially learned to a high degree, and can change dramatically. If we conclude that women are not starting high-growth companies because they lack the required inherent attributes, or because they don’t want to—or because men don’t want them to—we run the risk of falling back on stereotypes that already are destined for history’s dustbin.

Women in academic life science may have begun changing since the years covered by the Gender Differences in Patenting study. Although the study itself was completed in 2006, the last year in the data period was 1995. The authors noted that younger female faculty seemed more prone to commercial activity, but also observed that a good bit of gender-gap behavior had persisted into the 2000s. Here, as elsewhere, the questions that matter most are: What could any of us do to help move the situation forward? How can we help more women build on their discoveries and ideas for the benefit of all?

Actionable Next Steps:

- Not-for-profit initiatives advancing opportunities for high-growth women entrepreneurs need greater funding and skin in the game from women executives, philanthropy leaders, and industry. Support of networking and collaborative events between startup founders and big companies are critical for all entrepreneurs, but even more critical for women and underserved minorities that do not have the same access to networks that can provide them their first

customers. We need to expand programs like Astia, NewMe, Founder Fridays, Women 2.0, Kauffman FastTrac[®], and myriad other not-for-profits focused on providing education and networks for high-growth women entrepreneurs.

- Successful women entrepreneurs or inventors should make themselves visible and available. Role models are critical to young women considering the potential opportunities of entrepreneurship.
- Invite women to join science advisory boards of high-tech companies. We've already established that there is abundant expertise available among women in these fields.

Various other reports and studies, at various times, will show women's entrepreneurship gaining ground in some respects, while stalling or regressing in others. We can do the most good by keeping the big picture in mind: the room for improvement, the room for growth, throughout our economy and society.

ⁱ Tim Kane, "The Importance of Startups in Job Creation and Job Destruction," Kauffman Foundation Research Series, July 2010, along with previous work by others as cited by Kane.

ⁱⁱ Fairlie, Robert W. Kauffman Index of Entrepreneurial Activity, 1996-2010. Ewing Marion Kauffman Foundation, March 2011. http://www.kauffman.org/uploadedfiles/kiea_2011_report.pdf; Robb, Alicia M., and Susan Coleman. Characteristics of New Firms: A Comparison by Gender. Ewing Marion Kauffman Foundation, January 2009. http://www.kauffman.org/uploadedfiles/kfs_gender_020209.pdf; Kepler, Erin, and Scott Shane. Are Male and Female Entrepreneurs Really That Different? U.S. Small Business Administration Working Paper, September 2007. <http://archive.sba.gov/advo/research/rs309tot.pdf>; The American Express OPEN State of Women-Owned Businesses Report. American Express OPEN, March 2011. http://media.nucleus.naprojects.com/pdf/WomanReport_FINAL.pdf; Ding, Waverly W., Fiona Murray, and Toby E. Stuart. Gender Differences in Patenting in the Academic Life Sciences. Ewing Marion Kauffman Foundation, 2006. http://www.kauffman.org/uploadedFiles/gender_patenting_8306.pdf.

ⁱⁱⁱ Mark K. Feigener, "S&E Degrees: 1966–2008," National Science Foundation, NSF 11-316, June 2011.