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As the US tech industry saw rapid growth during the 1990s, immigrating students and workers from Asia heeded innovation's call. Engineers and programmers from India settled in Silicon Valley and enjoyed immediate success. About one out of six tech startups was launched by immigrants from India. Now some of these tech workers return to India, explains author and trade specialist Sean Randolph. Some head Indian offices for companies like Google or Cisco and others return on their own, with multiple factors driving the exodus: restrictive immigration policies, reduced opportunity in the US accompanied by high rates of growth, a huge market and entrepreneurial opportunities in India. Companies and venture capitalists express hope that the immigrating tech workers inject entrepreneurial adventure and a sense of risk-taking into both India's schools and workplaces. A new rush of capital, networking and brainstorming could lead to innovations that may once more transform the world. – YaleGlobal

A new diaspora of tech workers takes off in search of opportunity

Sean Randolph
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Silicon Valley roots: Chairman of HCL Infosystems Ajai Chowdhry shows off the new ultra-portable laptop in Delhi

SAN FRANCISCO: Throughout history, diasporas have reflected economic or political disruptions, ultimately enriching the receiving countries. Silicon Valley's dynamic churn is the latest example, as many Chinese and Indian migrants are returning home, ready to lay a new foundation for innovation and growth.

For some Chinese, immigration to the United States reflected despair in the wake of the 1989 Tiananmen massacre; for others, it represented economic opportunity at a time of economic stagnation. Indians left for similar reasons, though less political: India's economy offered little future for the talented and ambitious, while opportunities abroad promised a better life. Seeking jobs and education, many of the best and brightest came to Silicon Valley.

Powerful push-pull dynamics made California a draw. Its universities offered world-class education. Programs in engineering and computer science drew Indians in particular. This coincided with the run-up to the dot-com boom and was accelerated by the Y2K scare, which generated massive demand for programmers to fix the problem. The gap was filled by importing engineers, primarily from India.

By 1986, nearly 60 percent of Indian Institute of Technology engineering graduates were migrating overseas, mostly to Silicon Valley. Research by Berkeley's AnnaLee Saxenian found that by 1990 a third of the Bay Area's science and engineering workforce was foreign born. One fourth of its engineers – 28,000 – were Indian, more than half with advanced degrees. By 1998, as the tech boom neared its peak, 774 of the 11,443 tech firms started since 1980 had Indian CEOs. From 1995 to 2005, 15 percent of Silicon Valley startups were launched by Indians – the largest number for any immigrant group.

Today about half of California's 475,000 Indian immigrants live in the San Francisco Bay Area, making it the second largest community in the country after New York. Its profile is unique: median income is \$107,000, 75 percent of adults have at least a bachelor's degree, and 70 percent are in management or professional positions.

The economic contributions are impressive. Immigrants from India have founded iconic Silicon Valley firms such as Sun Microsystems (Vinod Khosla), Brocade (Kumar Malavalli), Cirrus Logic (Suhaz Patil) and Hotmail (Sabeer Bhatia). Behind this lie pivotal contributions to technology innovation, including ethernet (Kanwal Rehki), fiber optics (Narinder Kapany) and the Pentium chip (Vinod Dham). Many Indian entrepreneurs, having achieved success, have gone on to become venture capitalists, investing in and supporting a new generation of startups.

Now a new migration is underway, which promises to jumpstart innovation in India. It has three drivers: reduced opportunity in the US after the dot-com collapse and the second recession in a decade; sustained growth of 8 to 9 percent in India, which may now offer more entrepreneurial opportunity than the US; and India's development as a technology platform and market with global scale.

Students are part of the story. India sends more students to the US than any country, including China. Most study computer science, business and engineering at the graduate level. But while many of the best students continue to come and Silicon Valley remains a draw, perspectives are shifting. In the past most planned to stay indefinitely, but many now arrive expecting to return home, perhaps with a few years work experience. Regressive US immigration policies are a factor, but opportunity is the driver.

Those who return – and others assigned by their companies short-term – find a receptive environment. While not lacking for business leaders or entry-level engineers, India is short on middle- and upper-level managers with the skills needed by global companies. Venture capital is also in its infancy. This is where Silicon Valley comes in.

In addition to employing tens of thousands of engineers, companies such as Intel, Google, Cisco and Oracle are staffing top levels of their India teams with California employees of Indian origin. The India offices of venture firms such as IDG Ventures and Sequoia Capital are also led by returnees, who team with local partners. As many as a third of the participants in entrepreneurial forums such as Delhi's "Startup Saturday" are returnees. Conversations readily turn to schools, colleagues and favorite restaurants in San Francisco. Flights between San Francisco and Bangalore, where many Bay Area firms have R&D centers, run full as entrepreneurs, employees and investors travel both directions. Lufthansa's "Bangalore Express" is one of the airline's most heavily trafficked routes and its second-largest long-haul market.

Institutional intermediaries also play a role. The Indus Entrepreneurs (TiE) started in San Jose in 1992 as a dinner group of Indian expats, with the idea of supporting local entrepreneurs. Eighteen years later, TiE runs a global network of 53 chapters with 11,000 members in 12 countries. The largest contingent outside the US is in India, supported by active links to the mothership, TiE Global, in Santa Clara.

The Bay Area-based Wadhvani Foundation, led by Aspect Development founder and Symphony Technology Group chair Romesh Wadhvani, also promotes entrepreneurship. Projects include the Wadhvani Center for Entrepreneurship Development at the Indian School of Business, and the National Entrepreneurship Network. The network, which aims to help Indians start companies, engages 233 institutions, 350 instructors and 250,000 students. Faculty from Stanford and other US universities help with curriculum and faculty development.

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Another Valley resident and co-founder of Indian IT giant HCL, Yogesh Vaidya, runs a national network of schools to train recent graduates in the skills needed to work in global enterprises.

This combination of money and experience can be potent. Bala Manian, a founder of six Bay Area companies, is a case in point. His latest start-up ReaMetrics, based in Silicon Valley and Bangalore, employs a team laced with returnees. Manian moves between the Valley and Bangalore every six weeks, focusing also on his role as investment committee chair of India Innovation Fund. Most of the entrepreneurs approaching the firm have US and Valley roots.

Through all this a cultural conversation is taking place. Despite its success in IT, an army of engineers, and world-class educational institutions, risk-taking in India is not engrained and failure is usually permanent – in contrast to Silicon Valley where the start-up ethos is pervasive, risk-taking is expected, and failure is accepted. Few technological breakthroughs have originated in India, and an entrepreneurial innovation culture has yet to take hold, as the highest goal of university graduates is typically to work for a major IT firm, not start a company.

Silicon Valley venture funds, and advisers such as Silicon Valley Bank, aren't just bringing capital and supporting entrepreneurs. They also bring the experience, networking and hands-on support that help convey the Valley's entrepreneurial ethos. Recent beneficiaries include the first consumer internet company in India to go public (Nauri.com, funded by Kleiner Perkins), India's first online gaming company (Kreda, funded by IDG Ventures), India's version of Expedia (Make My Trip.com, funded by Sierra Ventures), and Café Coffee Day, India's answer to Starbucks (funded by Sequoia Capital.)

With its large market and many low-income consumers, India is developing its own brand of innovation, based on effective and low-cost services and technology deployment. Initially targeting domestic markets, potential applications are global. This home-grown entrepreneurship will gather momentum of its own. But for now, India's Silicon Valley diaspora is proving a key resource for both countries, recycling to India much of the energy, creativity and experience that made the Valley a global technology icon.

Sean Randolph, president and CEO of the Bay Area Council Economic Institute, is the author of a recent study "*Global Reach: Emerging Ties Between the San Francisco Bay Area and India.*"

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