

AMERICA IS NOT IN DECLINE, AND STARTUPS ARE AN IMPORTANT REASON WHY

A CASE STUDY OF ALBUQUERQUE, NEW MEXICO

INNOVATIONS CASE NARRATIVE: VILLAGE CAPITAL AND REVOLUTION LLC, THE “RISE OF THE REST”

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In a brilliant essay in the March 2016 edition of *The Atlantic Monthly*, journalist James Fallows reflected on his three-year, 48-city tour of the United States, during which he covered 54,000 miles in a single-engine plane. After the ambitious project concluded, Fallows wrote that, contrary to what is often said about the decline of the United States, especially in a presidential election year, he finds reason to be very optimistic. His conclusion is that there is a surprisingly high number of talented people across the country and that the U.S. is in a

promising period of reinvention and renewal. Fallows’ journey brought him in contact with entrepreneurs and innovators who are launching new startups and creating jobs in places like Duluth, Minnesota; Redlands, California; and Columbus, Ohio.

What Fallows calls the “the Big Sort”—the notion that smart and ambitious people are congregating in New York, San Francisco, or Boston—is not playing out as many assume. “America thinks of itself as having

a few distinct islands of tech creativity; I now see it as an archipelago of startups and reinvention,” Fallows says.

At Village Capital and Revolution LLC, we too see America as an archipelago of startups and reinvention. Our core investment thesis is to put money behind talented entrepreneurs who are tackling problems in cities beyond the traditional startup hubs. Revolution, led by AOL cofounder Steve Case, is in fact investing 90 percent of its

capital outside of New York, California, and Massachusetts. Village Capital's business model is committed to changing the power dynamics in early stage investing and to deploying risk capital more efficiently. Our focus is on two major problem-solving areas: access to opportunity for underserved communities (through health, education, and financial inclusion ventures), and sustainability of the planet's resources (through energy and agricultural ventures).

We've seen firsthand that this wellspring of talent across the U.S. is real and growing. In 2014-2015, Revolution, in partnership with Village Capital, led a "Rise of the Rest" bus tour to 19 cities to observe local startup ecosystems—and to invest \$100,000 in the most promising entrepreneur they met in each city along the way. Village Capital offered startup mentorship programs in 15 additional communities.

Artiphon, a smart-device musical instrument startup that won the Rise of the Rest investment in Nashville, is a prime example. Founder Mike Butera is tapping into the expertise of the city's growing tech scene, including people involved with the Nashville Entrepreneur Center and musicians active in the city's art scene. Artiphon raised the most money ever for a musical instrument startup with a Kickstarter campaign, and in 2015 Time magazine named the Artiphon a top 25 Best Invention. Wealthforge in Richmond, Virginia, is another example of strong talent outside a traditional startup hub. Founders Fred

Bryant and Mat Dellorso are drawing on Richmond's rich "DNA" as a banking and finance center to scale a Fintech startup that uses technology to reinvent the process of making private placement investments.

Although 78 percent of venture capital goes to just three states—California, Massachusetts, and New York—there is a rich history of iconic companies starting up all across the country. Indeed, most Fortune 500 companies are based in the other 47 states: Ford Motor Company began as a small but ambitious car manufacturer in Detroit; Nike and Under Armour launched in Portland, Oregon, and Baltimore, respectively; and Microsoft got its start in Albuquerque.

Promoting greater geographic diversity for new enterprises has the potential to stimulate economic growth in cities like St. Louis, Kansas City, and Pittsburgh. According to the Kauffman Foundation, new businesses—firms less than five years old—drive almost all of the economy's net new job creation. Large employers and small businesses employ most people, but they add and shed jobs at roughly the same rate. Most new jobs come from startups, and the "gazelle" firms—the top-performing 1 percent of startups—generate about 40 percent of those jobs.

This is why we at Village Capital and Revolution agree with James Fallows that there is reason to be optimistic about the U.S. economy, and we believe that other

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venture funds should take notice. Technological advances, especially in mobile technology, cloud computing, and big data, have lowered entry barriers for new startups. Improvements in public policy—specifically the JOBS Act passed in 2012, which improves access to capital for budding entrepreneurs—are making it easier to launch new businesses. Moreover, local and national leaders are demonstrating a growing awareness that the key to economic growth is a vibrant startup community. In fact, President Obama held the first ever “demo day” at the White House in 2015.

A final factor in the importance of geographic diversity is real estate. The cost of living is more manageable for an entrepreneur or an employee at a young tech company in Buffalo or New Orleans than in Palo Alto, making the “good life” more affordable.

The data are starting to show that the playing field is leveling for entrepreneurs. A recent *Harvard Business Review* study described how the distribution of venture capital dollars is spreading to metropolitan areas previously overlooked by investors. More companies were funded in the Midwest in 2014 than at any point in the past five years, and four regions in the U.S. are seeing higher unicorn success rates than Silicon Valley.¹ South Florida-based “cinematic reality” startup Magic Leap, for example, recently closed a \$1 billion financing round and now includes Google and Alibaba among its investors. As Fallows points out, in the Kauffman Foundation’s 2015 ranking of the “startup density” of metro areas—that is, the number of new businesses divided by the population—San Francisco is not in the top 10. Miami, New York City, and Orlando are on top, followed by Austin, Denver, and Tampa. Columbus, Ohio, showed the largest one-year increase in the number of startups.

In this article we will examine the factors that we believe enable a city to harness its

regional advantages and “startup DNA” to create a thriving, sustainable, and impactful entrepreneurial ecosystem. We will then offer a case study of Albuquerque, New Mexico, which is experiencing a renaissance of innovation and entrepreneurship by embracing its long history as an engineering and technology transfer hub and investing in an even stronger future.

THE RISE OF THE REST

Supporting local and regional economic growth is not a new policy objective; it is in fact embedded in the founding principles of the United States. As Phillip Longman pointed out in another Atlantic article, the country’s founders created the Senate to ensure that the smaller and less populated states would have a chance to participate fully in the American experiment, and they included the Postal Clause in the U.S. Constitution, which guarantees mail delivery to remote communities. In 1887, after the advent of the railroad, Congress created the Interstate Commerce Commission to protect smaller communities from railroad price discrimination, and the Federal Reserve later located member banks in cities around the country so not all monetary policy would be made in New York.

These efforts and others, including antitrust legislation and regulatory regimes for public utilities, made certain that innovation could emerge in different corners of the country. As globalization picked up steam in the 1970s and 1980s, many of these policy prescriptions were rolled back, but a critical shift around regional entrepreneurship has started to take hold again in recent years, and we have started to see greater geographic parity of venture dollars, with high-growth firm formation poised to follow.

After meeting many hundreds of entrepreneurs and logging 4,000 miles while conducting Village Capital’s programs and Revolution’s Rise of the Rest bus tours, the most common question we’ve heard is also

the most challenging: What are you seeing out there that is working well? The answer, in terms of enabling a city's startup ecosystem to grow regardless of size, workforce differences, or core industry strength, is that we have seen four tactics that work especially well across the board.

1. Start Local

Nationally, we see many seed-stage businesses doing slight variations on what other startups are already doing. As a result, authenticity is increasingly becoming a competitive advantage, as it enables a business to differentiate itself in a less well-known city. Business founders who harness the assets, DNA, and character of a city are well positioned to succeed. We saw this with Artiphon, which leveraged Nashville's music and tech scene, and Wealthforge, which leveraged Richmond's strength in financial services. Shinola, a portfolio company launched by Revolution in Detroit, is growing rapidly, employs former auto workers who have been retrained to craft handbags, bicycles, watches, and other products. Kickboard in New Orleans is building on the post-Katrina education renaissance, calling on Teach For America graduates to change the way teachers manage school culture. Another successful Revolution exit was OrderUp, a Baltimore startup founded to offer the on-demand economy to smaller markets.

2. Get the Policy Right

Government can make a positive difference, and the city of Buffalo is a prime example. The city's manufacturing base started a steady decline in the 1970s, which led to a dramatic decline in population and GDP. A long period of struggle ensued, and the former regional powerhouse—once the thriving western terminus of the Erie Canal—lost its vibrancy.

The New York state government has made targeted investments to spur startup activity

in Western New York over the last five years. As part of a larger multi-billion investment in the region, public dollars have pulled private dollars off the sidelines to encourage a new generation of college grads and innovators from the region's 22 higher education institutions to stay in Buffalo and start or join a new business. This has led to the creation or expansion of new incubators and accelerators that are housing growing companies, including Z80Labs, dig, Vcamp, Launch NY as well as the world's largest business plan competition, 43North.

In Philadelphia, outgoing mayor Michael Nutter's StartupPHL initiative is funded with \$6 million of public and private monies. Managed by Josh Kopelman at First Round Capital, StartupPHL is investing in early stage tech companies. The mayor's efforts on behalf of startups has sent a powerful signal that Philadelphia offers an environment where founders can grow their business, rather than relocating along the Amtrak corridor in New York or Boston. Village Capital's most successful commercial exit to date is IDocWay, a Philadelphia-founded company that uses telemedicine to extend mental health care to rural areas; the company was acquired by major pharmaceutical company Genoa in fall 2016. Cities that generate the right environment for startups will see similar success over time.

3. Be Dense

As technology continues to transform the traditional one worker to one employer paradigm and an increasing share of the workforce has part-time roles with multiple platforms, cities that bring the talents of the creative, innovative makers in their community under one roof will create a virtuous cycle. Creating shared physical work spaces for founders, workers, and investors enables their ideas and talent to mesh, and it can also make working at a startup more fun, which is meaningful for an engineer trying to decide between a job at an early stage

company or a large corporation—and for the entrepreneur who is trying to hire him. Durham’s American Tobacco Campus, a revitalized historic tobacco campus turned office space that houses 300 startups within a five-minute walk of one another, shows what is possible outside of Silicon Valley. The Durham campus has seen seven companies exit in the last couple of years, earning a combined \$1.5 billion.

Buffalo’s Niagara Medical Campus is another example of density done right. It is where founders and innovators are working on ideas with D!G, Z80Labs, and 43North—all under one roof. Other promising efforts to build density can be found in Baltimore’s CityGarage, Cincinnati’s Cintrifuse, and COCO, the Minneapolis hub for entrepreneurs.

4. Convene and Be a Magnet for Talent

Creating a convening event—an occasion or festival that brings together local leaders and outside capital—is something any city can do. It can advertise a city’s assets and help to spur startup activity. Startup and Create Week in Portland, Maine, for example, brings together more than 3,000 investors, founders, designers, and forward thinkers from over 27 states to learn, be inspired, and network. That’s a significant showing in a city like Portland, with a population of only 66,000.

New Orleans Entrepreneur Week, which is held in March and is led by Tim Williamson, celebrates innovation, entrepreneurship, and new ideas. Part of the idea behind Entrepreneur Week is that the future of New Orleans will need to be dreamed up and created by entrepreneurs. New Orleans’ school system, for example, which was largely and literally washed away by Hurricane Katrina, became a national laboratory for education reform. This was a tremendous opportunity for entrepreneurs, as it gave them a chance to participate in a

living laboratory of innovative EdTech services. As a city with one of the largest pools of Teach For America alumni, New Orleans was already home to bright young education minds. This influx of early adopters and customers provided a crucial ingredient.

One of these bright young minds was Jen Medbery, a coder who was living in New Orleans and working as a founding teacher at a charter school. After three years in the classroom, Jen developed Kickboard, a tool to help teachers to make better decisions in the classroom by providing reliable data on each student. Kickboard was Village Capital’s first investment, and it has raised \$2 million in funding. The teacher-friendly Kickboard software is now used by 200 schools in 20 states.

Jen has been compared to an “edtech godmother” for New Orleans, but she is not alone. Entrepreneurs in the city benefit from 4.0 Schools, a nonprofit incubator for schools and education startups that was founded in New Orleans in 2010, and the city recently hosted a “Tech for Schools” summit, which brought in 25 entrepreneurs from around the country. By 2015, New Orleans was 56 percent above the national average in the number of startups per capita, and was named the second best city for women working in technology.

In the next section, we will dive deeply into Albuquerque, New Mexico, a city that is wholeheartedly embracing its unique startup DNA and blending regional strength with impact objective.

Albuquerque and Engineering

In 2015, Village Capital partnered with the Kauffman Foundation and the Albuquerque community on a program to support early stage entrepreneurs who are addressing water insecurity issues through technology. Village Capital chose Albuquerque for this engineering- and

biotech-heavy program because of the city's strong credentials as an engineering hub.

Water insecurity is a major problem around the world, including in the United States. According to the World Health Organization and UNICEF, 750 million people lack access to clean water (about 2.5 times the U.S. population). In the United States, the 2014 drought affected areas that produce one-third of the country's cattle and half its fruit, vegetables, and winter wheat. Moreover, irrigation and food production put some of the greatest pressure on freshwater resources, and 2.5 billion gallons of water are contaminated each day in the U.S. by oil and gas production.

New Mexico is a state with limited water resources, and Albuquerque is right in the middle of this crisis—and this opportunity. About ten years ago, a drill rig in the middle of the New Mexico desert hit a windfall—a pool of brackish water that may well be the largest in the U.S. Brackish water is saltier than drinking water, but modern desalination techniques allow it to be converted into a drinkable liquid. If this discovery had happened in another city, it would be viewed simply as a boon to the water supply, but Albuquerque is well positioned to take advantage of the discovery by positioning itself as a hub for entrepreneurship around water sustainability, and engineering more broadly.

The city already has a history of innovation, and technical engineering is in the city's DNA. An early site of computer development, Paul Allen and Bill Gates moved to Albuquerque to develop the first iteration of Microsoft. Sandia National Laboratories has received more than one hundred awards from R&D magazine, and engineers at Los Alamos National Laboratory were pioneers in atomic energy. The University of New Mexico has a strong engineering program, boosted by the university's Science and Engineering Park, and the Air Force Research Laboratory has conducted numerous experiments with NASA. Because of

this history, Albuquerque has an incredibly dense research, technology, and innovation infrastructure that has been built over many years and has primed the city to be a modern-day innovation hub.

THE “RAINFOREST IN THE DESERT”

Over the past few years, the University of Mexico (UNM) and the city of Albuquerque demonstrated a strong commitment to support entrepreneurial activity by creating a district for research and innovation within the city. In 2013, UNM partnered with local business leaders to create Innovate ABQ, an entrepreneurial hub strategically located between the downtown business area and the UNM campus. As a core site of the district, Innovate ABQ is envisioned as a catalyst for research and innovation throughout the region.

UNM professor Robert G. Frank commented on the project:

We have the research-rich environment of our universities and national labs, the state's high ranking as a place for entrepreneurs, engineers, and scientists, and we are great at spinning out new companies . . . We have all the ingredients. Now it is time to bring these elements into creative synergy. We have taken the first steps. Now it is time to scale up our efforts and move the state forward.

The city calls itself the “Rainforest in the Desert,” based on an idea authored by entrepreneurial leaders Victor Hwang and Greg Horowitz that a polycrop culture of ideas and capital create great ecosystems. In such places, Silicon Valley being a prime example, a highly diverse group of people can connect rapidly, share ideas freely, and collaborate from the bottom up—like a biological rainforest.

Sandia Labs, Los Alamos, and UNM represent a keystone species in Albuquerque's "rainforest." By breaking down traditional hierarchies and reaching across social boundaries, they are able to connect people with ideas, talent, knowledge, and capital, while also serving as a filter for high-quality connections and propagating cultural behaviors that are conducive to innovation.

Innovate ABQ has a number of assets that play off each other, including low-cost incubators like Epicenter and Fatpipe ABQ, accelerators like ABQID and the Bioscience Center, and support and investment organizations like the West Enterprise Center and the New Mexico Angels. Finally, the Albuquerque government has invested significant resources in its Living Cities' Integration Initiative, an effort to accelerate job creation and economic mobility through innovation and entrepreneurship.

With this forward-looking environment, Village Capital believed Albuquerque was the best place in the country to gather a cohort of companies to address the pressing engineering challenge of water sustainability.

BUILDING A WATER ECOSYSTEM

In 2015, Village Capital launched a national venture development program to build a water ecosystem in Albuquerque, in partnership with the Kauffman Foundation, the Community of Albuquerque, and national investors BSP Fund, Chilton Capital Management, the Tecovas Foundation, and the New Belgium Family Foundation. The 12 water technology ventures selected to participate included innovative water sub-metering systems, technologies that harness wave energy, desalination solutions, and even portable pressurized shower systems for rural communities. Three of the ventures were based in New Mexico, including an Albuquerque firm that produces water conservation systems

for gardens and a Santa Fe startup that markets low-cost desalination pumps.

At the end of the program, Village Capital invested in two companies: Emrgy Hydro, which delivers affordable hydropower from waterflows previously considered too small or too slow for energy purposes, and AQUEES, which helps large buildings reduce water usage and save money through solutions like water analytics and smart metering. Interestingly, after participating in the program, five ventures from outside of the city set up formal operations in Albuquerque.

Engineering companies in Albuquerque, and cities like it, are showing promise by building globally competitive companies at a fraction of the cost of their potential competitors in Boston or Silicon Valley. We offer three examples.

In 2006, John Elling founded Acoustic Cytometry with technology licensed from Los Alamos National Laboratory. The company developed a method for using sound waves to guide cells through cytometers, or cell meters, which allows medical researchers to examine tissue samples more closely. Within two years the company was acquired by a larger biotech corporation, and Elling is in the process of launching another company at the Santa Fe Business Incubator.

Pajarito Powder started in 2012 with the mission of being the world's first commercial manufacturer of drop-in replacement non-platinum fuel cell catalysts. Platinum is exorbitantly expensive and has a precarious supply chain. Pajarito Powder has leveraged the Los Alamos National Laboratory and other research facilities to deliver catalysts made of widely available and inexpensive materials that also have the requisite performance and durability. In December 2015 the company was selected to lead a \$2,790,000 energy department advanced research project to develop, in conjunction with its partners, a reversible hydrogen elec-

trode that will enable cost-effective production of hydrogen and reversible fuel cells.

RiskSense is a 60-employee Albuquerque company that helps public agencies and other clients identify and fix vulnerabilities in their networks. The company, which is an offshoot of New Mexico Tech, built its expertise handling highly sensitive information for state agencies and national labs that manage, among other things, the development of nuclear weapons—perhaps the most sensitive information in U.S. research. In 2015, with reported 2014 revenue of \$4.6 million and 273 percent growth, the company made the Inc. 5000 list of fastest-growing companies.

Albuquerque is just one example; we could do a similar case study on dozens of cities across the U.S. that have identified regional assets, and then taken steps to build out resources and a community of entrepreneurs around them. Whether it's financial inclusion in St. Louis or agriculture in Minneapolis, every city has its story. We look forward to these communities changing the national narrative around where entrepreneurship can thrive.

CONCLUSION

Silicon Valley, which symbolizes the promise of innovation and capitalism, is the envy of the world—as it should be. Entrepreneurs and investors in the Bay Area are tackling real problems and building companies that create and capture value. But if we want communities across America to be places where people can grow, thrive, and build livelihoods for their families, we need a more evenly dispersed innovation economy. As James Fallows points out, and as Revolution and Village Capital have witnessed firsthand, we're in the early stages of such a dispersal of talent taking hold. How do we accelerate it and expand it to more cities and towns nationwide?

First, identify local assets, then work with local leaders to develop these assets as a

competitive advantage, and make startup formation a key component of the local economic ecosystem. Despite the many challenges facing the United States, we can all do more to celebrate entrepreneurship and the men and women who are trying to build high-growth, change-the-world companies in unlikely places. As Fallows puts it, "Until the country's mood does change, the people who have been reweaving the national fabric will be more effective if they realize how many other people are working toward the same end."

¹. A unicorn is a startup company valued at more than \$1 billion.